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REORGANIZATION OF CLINICAL TEACHING

A COMPILATION OF REPORTS OF A SPECIAL COMMITTEE, PRESENTED BY THE CHAIRMAN *

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Recognizing the need of a thorough reorganization of clinical teaching in this country, a year ago a special committee of ten prominent physicians of the United States and Canada was appointed by the Council to prepare reports which would serve as a basis for a general discussion of the subject at this conference.

In order to facilitate the work, a meeting of the committee was held in Chicago, December 28, 1914, at which individual reports were made. After a thorough discussion, the bounds were fixed within which the members were asked to confine their treatment of the subject in written reports which were to be sent in. It must be understood that the following is a compilation from these reports and is not the final report of the committee. This compilation touches on many of the problems which should be given thorough discussion before any final recommendations are made. In the discussions at this conference, a special effort has been made to have all points of view represented, and these discussions will be of great assistance to the committee, which will make its final report later.

FROM THE INDIVIDUAL REPORTS

In considering the reorganization of clinical teaching in the medical schools of the United States, it is necessary to keep in mind that any standards suggested should be of sufficient rationality that they may be adopted by all the medical schools of the country which have sound reasons for existence. It is necessary to remember also the educational and financial status of the communities in which the various medical schools are situated. Certain standards may be set forth for adoption in the immediate future, while more advanced standards may be suggested to provide for evolutional improvements, to be adopted at certain fixed periods in the future—just as was done in 1905 with regard to admission requirements and full-time teachers in the laboratory departments.

In advising a standard of clinical organization, there are certain essentials which must be considered:

1. *Adequate Hospital and Dispensary Facilities.*—A properly equipped hospital is an essential part of the first-class medical school, which should have absolute control of the medical management and beds. A small hospital so controlled by the medical school has a much greater educational value than a large hospital in which clinical teaching is embarrassed by political or other disturbing factors.

A clinical class (seniors) of one hundred students or less should have a hospital of a minimum of two hundred beds. This minimum cannot well be lowered, because otherwise there will not be the essential variety of patients from which selections may be made. There should also be an outpatient department of at least ten thousand patients, or 50,000 visits annually.

With three main departments, the 200 bed hospital would afford 75 beds for general medicine, including neurology, pediatrics and dermatology; 75 beds for general surgery, including sub-departments of the eye, ear, nose and throat, genito-urinary diseases and orthopedics; and 50 beds for obstetrics, including normal infants and gynecology. This minimum bed hospital for one hundred students could, with advantage, be doubled or trebled for the same number of students by the schools which could financially afford it.

If the medical school cannot build and endow its own hospital, it should establish a relationship whereby some hospital already built and in operation may be attached to its teaching equipment. Such a hospital should be in close proximity to the medical school, and should possess the necessary auxiliary departments, to-wit: A clinical laboratory, a Roentgen-ray department, a bacteriologic laboratory, a laboratory for metabolic investigation (physiologic chemistry), and space for the instalment of apparatus for investigating cardiovascular diseases and the organs of special sense. The dispensary should include all the departments of medicine and surgery, general and special, and should be in intimate and harmonious connection with the wards in the hospital, to which may be referred patients whose diseases or injuries cannot be managed satisfactorily in an ambulant service. In each such hospital, or at least in the outpatient service, there should be a fully organized social-service department.

* Read at the Eleventh Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 16, 1915. The discussion of this paper appears under Society Proceedings, this issue.

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For adequate clinical teaching in obstetrics and gynecology, of the beds assigned for this purpose (preferably 100), two-thirds should be devoted to obstetrics and one-third to gynecology, either under one roof or in separate departments. In addition to this intramural hospital service, a dispensary in direct charge of the teaching staff should be equipped for instruction in the diagnosis and treatment of ambulatory conditions, which make up the routine work of the physician's office practice.

For teaching the specialties, such as ophthalmology, otology and rhinolaryngology, large ward accommodations are not so essential, since satisfactory instruction is easily accomplished in the outpatient departments of these specialties; some beds, or, better, small special wards, however, are necessary. For example, in ophthalmology, from twelve to fourteen beds should be provided, and an equal number should be provided for otologic and rhinolaryngologic patients. An adequate ophthalmic dispensary service, for classes of from 75 to 100 students, should command not less than from 1,500 to 2,000 new patients yearly, or approximately from 7,500 to 10,000 visits.

2. The Necessity of Adequate Financial Income for Good Clinical Teaching.—That each clinical department of a medical school should have an adequate endowment, or receive a fair proportion from the general budget, is obvious. Each must have sufficient provision for teachers, technicians and janitors, supplies, new apparatus and books. The latter may be available through a general library; but it should be possible for the clinical departments to get all books, charts, diagrams and other similar teaching material as promptly as possible. It is difficult to make a definite budget that can be immediately applied. Certain general principles seem clear. The head of the department should have an adequate salary, though not larger than that of the heads of other departments. More important than the salary of the heads seems the need of having adequate salaries for those next in rank, that will enable them to be independent of practice. Such salaries would range from $2,500 to $4,000 or $5,000. These men would then have positions somewhat like a German extraordinarius or primarius, except that instead of getting their income from students' fees and consultation cases, they would get it from the university. Even small schools should have one such man; larger schools would need two or three. They should be kept in the school as long as they are useful, but encouraged to migrate when they get good offers, so that they would rarely reach the maximum salary. Next to these men, there is need for from two to five or six well-trained men who could carry on clinical work including research, and teach. They also should have salaries that would permit them to be independent of practice, say, from $1,500 to $2,500. Below these would come residents and assistant residents, getting respectively from $500 to $1,000, or from $300 to $500 a year and their keep. There should be enough technicians to care for the laboratories and part of the laboratory work, such as preparing dyes and reagents, photographic work, section-cutting and other routine work. The budget should provide for an adequate stenographic force, for supplies and for new equipment. In developing satisfactory clinical staffs, it may be necessary to take young men and train them, beginning with small salaries, because men of desired experience (worth from $1,500 to $3,000 a year) are sometimes difficult to obtain.

As the full-time professorship plan is now on the proving ground, and, with one exception, there is to-day no medical school so financially situated as to institute the plan, a budget to provide for it would be prohibitive. For a medical college having a clinical class of two hundred students (one hundred juniors and one hundred seniors), the minimum clinical annual budget should be from $75,000 to $100,000.[1] This sum may be apportioned approximately as follows: To medicine and its subdivisions, from $30,000 to $40,000; to surgery and its subdepartments, from $30,000 to $40,000; and to obstetrics and gynecology, from $15,000 to $20,000; and this budget unit could be doubled when possible without extravagant expenditure. The total budget also will vary greatly, depending on locality and other conditions. The same amount of money, for example, would go much further in Ann Arbor than in New York City.

The organization for the clinical faculty for the school and hospital unit and the disposition of the budget may be illustrated:

1	Chief or Head of Department	$2,500 to	$5,000
1	Associate or Assistant Clinician in Hospital	1,250 to	2,500
1	Associate or Assistant Chief of Clinical Laboratory	1,250 to	2,500
1	Associate or Assistant Chief of Outdoor Department	1,250 to	2,500
1	Resident	600 to	1,200
4	Interns		
1	Associate or Assistant in charge of Research Lab.	1,250 to	2,500
1	Biochemist	2,000 to	2,800
33	Senior Clinical Clerks		
	Stenographers, artists, etc.	3,000 to	3,000
	Dermatology, Head and Assistants	2,500 to	5,000
	Pediatrics, Head and Assistants	2,500 to	5,000
	Neurology, Head and Assistants	2,500 to	5,000

The subdepartments would have the cooperative aid of the resident, the interns and those in charge of the outpatient, laboratory and research departments.

The organization and disposition of the budget of the surgical and obstetric departments would be practically the same in principle with differences in details.

3. The Place in the Curriculum to Begin Prescribed Clinical Instruction.—Most schools are still on a four-years' basis, though the tendency is in the direction of adding a fifth year for obligatory hospital experience. On the four-year basis, it has been found that two years are insufficient for the proper and effective presentation of the clinical branches, which have grown apace and have become increasingly difficult and complex. Much of this difficulty will doubtless be obviated, however, by a careful organization of the clinical departments. Again, two years' time is not too much for teaching anatomy, physiology, biochemistry, etc. A course in physical diagnosis on the normal individual, and perhaps a corresponding preparatory course in surgery, may well be placed in the final semester of the second year. This change seems advisable, since, with the technic acquired, the student may take up the clinical work in the third year with greater profit. It is also advisable because it serves to bridge the gap formerly existing in the student's mind between the preclinical and the clinical courses—a gap accentuated by the intervening long summer recess.

The student should begin clinical work in his second year with practical exercises in the study of physical signs and their relation to symptoms and to pathologic processes. This can be done best in class room and laboratory, on normal subjects or with patients from the outpatient dispensary service. The student should then take up a careful reading of complete text-

1. This does not include cost of maintenance of hospital and dispensary.

books of medicine and surgery under personal weekly reviews with instructors, who should in conferences discover what progress the student is making in this work. In his third year, and coincidently with this theoretic study, he should continue his practical work in a dispensary and at the bedside, and should be given, in formal clinics and lectures, the most recent ideas as well as the long-established facts of the practice and theory of surgery and medicine. Instruction in obstetrics and gynecology should be finished in the third year with the exception of certain practical courses usually best given early in the fourth year. The courses in ophthalmology, otology and rhinolaryngology should begin and be finished in the third year, especially if a satisfactory departmental coordination of teaching can be established. In his fourth year the student should be prepared to follow and be a factor in the ward service of a teaching hospital.

If the arrangement for beginning clinical instruction in the sophomore year is adopted, graduates of some universities which offer the so-called combined medical course leading to an A.B. degree, and which give only the first two years of the medical course, will enter handicapped in so far as their preliminary course in physical diagnosis and the preparatory course in surgery are concerned, unless a certain amount of dispensary and hospital material may become available at those schools.

4. *Use of the Dispensary.*—An abundance of outpatient clinical material is one of the most valuable teaching assets of the medical college. Thus far, however, its value has not been appreciated, nor has the material been used to nearly so good a purpose as is possible. The dispensary material should be used for the instruction of undergraduates and for the clinical and other researches of the attending staff. It is best used for students in the second year for teaching physical diagnosis, and in the third and fourth years in internal medicine and in the medical specialties. Its greatest, and perhaps most neglected, use is to instruct third year students in the routine of history taking and fourth year students in the therapeutics of the lesser medical and surgical ailments. The dispensary service should be intimately connected with the ward service in every department. The obstetric material should be used in the third year for diagnostic purposes only, the practical care of the lying-in patients, both in the hospital and in private homes, being reserved for the fourth-year students. The gynecology dispensary material also is best used in the fourth year. For certain of the specialties, such as ophthalmology, otology and rhinolaryngology, outpatient clinical material is highly essential, and should be utilized for sections of from six to ten students, each section in charge of an instructor or demonstrator. The essentials in diseases of the eye, ear, nose and throat can be taught readily and with great thoroughness in the dispensary clinics.

5. *The Organization of the Hospital Units.*—In planning the construction of a hospital, the bed unit per ward should be considered. This bed unit depends on the number of beds to be assigned to each attending nurse. For acute cases four beds can be taken care of by one nurse; for more chronic cases six beds may be assigned to a single nurse. This makes 24 beds as a convenient ward unit; such a ward can be used either for chronic or acute cases. As many such units may be added as needed, varying with the size of the hospital. A service for a minimum-sized teaching hospital, one of approximately 200 (actually 192) beds can, therefore, be divided into eight such units of 24 beds each, four units (96 beds) each for the medical and surgical services. More satisfactory, however, would be a hospital of 300 (actually 288) beds, providing 150 (actually 144) beds each for the medical and surgical services. Each of these services could then be easily divided into three equal subdivisions of 48 beds each. Taking either the medical or the surgical service as an example, the personnel to direct and care for such a service would consist of the professor in charge, who should be the director of the service; three first assistants and six second assistants. One first assistant and two second assistants should be in charge of each third of the service. Under this staff, who do not live in the hospital, there should be a resident staff, to consist of resident physicians, at least three in number, who should serve with indefinite periods. These residents should be the direct overseers and instructors of the students on the clinical clerk service and also of the intern staff. There should be two interns to each service of 48 beds, serving for one year, in two grades of six months each—junior and senior. And, finally, there should be twenty-four or thirty clinical clerks, all fourth-year students, assigned to the service, eight or ten being designated to each subdivision. In addition, there might be voluntary assistants serving without pay, who would be doing special research work within the service both in the wards and in the laboratories, in which work the residents and also the first and second assistants could take part, although the regular staff should be especially concerned with the teaching of the students of the undergraduate school. The first and second assistants, in addition to their hospital work with the fourth-year men, should take care also of the third-year theoretic and practical instruction and of the second-year preliminary work; and at least one of the second assistants should have charge in the dispensary of the hospital and link that important organization to the ward service in the outpatient department. There should be extern assistants of sufficient number to take care of the ambulant patients.

The subtraction of one of these units from the above estimate would be no special hardship, but the addition of one or more, particularly of two units, would probably necessitate an entire duplication of a department in medicine and surgery, for it is doubtful if a single director should be asked to take charge of more than 150 beds. It would seem, therefore, that a partial duplication of the educational unit would entail an expense out of proportion to the educational results obtained.

The organization of special departments, such as that of ophthalmology, otology and rhinolaryngology, necessarily depends on the number of students enrolled, on the amount of money available for the departmental expenses and on the number of hours assigned to it in the curriculum. With classes of from seventy-five to one hundred students, there should be in each of these departments a professor, or head of the department, an assistant professor, and not less than three or four instructors. The instructors in the diseases of the eye, ear, nose and throat should have received a general hospital training in medicine and surgery, and should have devoted themselves to the diseases under consideration for a considerable period. Each should have had a full course, for example, in ophthalmology or otology, with at least one year's

work in a clinic, in addition to the preparatory training in medicine and surgery. They should be in a sense regarded still as advanced students, a large part of whose compensation consists in the opportunities for higher education, and while they are training the students who are assigned to them for instruction in the outpatient work, they are training themselves for more advanced positions.

A serious deficiency in the majority of teaching hospitals is the wide separation of the departments of a given unit. The laboratories, research rooms, so far as an investigation applies directly to the living patient, the history rooms, working library, residents' rooms, auditorium, and, indeed, every part of a clinical unit which makes for efficiency should be housed under one roof. Cooperation between departments should be encouraged so far as it relates to the larger problems and principles of medicine, but each department should be so completely constructed and the working staff so well provided for, in direct touch with the wards, that every detail of investigation and treatment may be conducted without reference to any other department. As now constituted the ward of the average hospital transmits its material for routine investigation to large laboratories more or less remotely removed from the wards. Often a perfunctory report is returned from a laboratory assistant, who may know nothing of the clinical problem at stake—a report, therefore, frequently not worth the paper on which it is written. A hospital unit should constitute a complete workshop, self-sufficient for all clinical purposes, and independent of all other departments, and under the immediate care of the director and his assistants. The larger problems should be dealt with by departmental conference and close coordination, each clinical chief calling to his aid colleagues in other departments, who may, through their special knowledge, shed new light on questions impinging on his domain.

6. *The Utilization of Students as Clinical Clerks in Hospital Wards.*—The clinical clerk system is the best for training undergraduates in clinical branches, provided their work is properly supervised by a senior resident physician, an instructor, or a demonstrator. This work should be begun as soon as the student has the necessary theoretic and technical training, and experience shows that they may begin as clinical clerks not earlier than in the last trimester of the third year with the three main divisions of (*a*) medicine, including pediatrics, neurology and dermatology, (*b*) surgery and the surgical specialties and (*c*) obstetrics and gynecology, and complete a trimester in each. The undergraduate will finish his general training at the end of the second trimester of the fourth year, and may then go on to more elective work. The student in the ward system learns by doing, by applying the scientific and technical knowledge acquired in the first two years and by receiving further instruction through teachers of various ranks in wards, laboratories, operating-rooms, clinics, and library.

In the obstetric wards the utilization of clinical clerks is most important. The many examinations of secretions, the testing of blood pressure, the regulation of metabolism through clinical tests, the observation and care of the infant, the estimation of the value of the mother's milk, are all so important that clerks should be in constant attendance; indeed it is most desirable that they should be in residence. The assignment of the number of patients to each student must be regulated according to the ward census and the number of students in class. In the wards devoted to the specialties, on the contrary, such as ophthalmology, otology and rhinolaryngology, students as clinical clerks are of very little service. Most of the material in these departments is better used in ward class instruction.

Before serving as clerks, even in the wards devoted to medicine and surgery, the student should have a sufficient knowledge of the specialties to determine the most conspicuous departures from the normal. For example, they should be able to determine the acuteness of vision and the field of vision; to know the method of testing the pupil reflexes, the simpler methods of determining the absence or presence of diplopia and of determining the probable character of deafness.

The period of service as clinical clerks in each of the two chief divisions of internal medicine and surgery should be not less than two, and better, four months' duration. The teaching personnel should consist, in each department, of a directing officer and of instructors to attend to the subdivisions of the class in their theoretic and practical work. The equipment should include a hospital with a dispensary service, in addition to the necessary laboratories, class-rooms and library. The hospital must be large enough to supply a sufficient number of clinical beds so that at least five, six, or eight beds could be assigned to each student for at least one-third of the college year. This final course of instruction as clinical clerks should consist of placing each student in charge of his quota of beds and making him a part of the hospital service and placing on him the responsibility for accurate observation and careful records. A strict accountability from the students can be secured only by a resident supervisor who has direct contact with their work and with the wards.

The hospital necessary to provide for clinical clerks must be large enough to accommodate the students enrolled in the school with which it is connected, or, in other words, the number of students enrolled in any medical college should be limited according to the size of its teaching hospital. If six beds were assigned to each clinical clerk for an entire year, a medical service of 150 beds would be necessary to accommodate 25 students; whereas, the same number of beds would accommodate 30 students for the entire year if 5 beds were assigned to each. Since it is estimated that each student should devote one-third of his year to each of the three services, it follows that a school averaging from 75 to 100 students in its graduating class would require a hospital service of approximately 150 medical beds and approximately 150 surgical beds, with additional provision for obstetrics and gynecology. A service of 150 beds is as large as should be under the direction of a single professor of medicine or surgery. If this educational unit of, say 100 students, be increased, it would be difficult to properly train them unless the whole hospital unit in medicine and surgery and its teaching force was duplicated. It is apparent, therefore, that a class of more than 100 senior students would entail an expense out of proportion to the results obtained until that class is duplicated, or nearly so.

7. *Utilization of Special and Extramural Hospitals.*—A medical school with a minimum number of beds, an outpatient department and a minimum budget for two hundred students in the third- and fourth-year classes, could and should amplify the clinical instruc-

tion, without additional cost, by affiliation with extramural hospitals, and increase their teaching force by volunteer clinical teachers on the staffs of those hospitals. When such hospitals are not too far from the medical school, and when sufficient teachers are connected with them as a part of a working educational machine, they may be utilized to good effect. Too often the instruction given in these hospitals is of a desultory or superficial character and the student soon loses interest or finds his time so fully occupied by duties in the central institution that he ceases to attend the classes. Only by a very close interlocking system under the direct supervision of the dean of the medical school may such instruction be of value.

Almost every community dense enough to justify the existence of a medical school is served by a large number of general and special hospitals. The use of such hospitals is desirable, especially if the school can secure in this way an opportunity for its students to study the types of diseases which are not usually seen in the active general hospital service. The chronic diseases of the joints and of the nervous system, the advanced stages of tuberculosis and of the alterations in physiology of the aged, as well as the care and feeding of healthy infants, can best be seen in the homes and nurseries devoted to such work rather than in general hospitals. Then there are the special hospitals for maternity cases, eye and ear infirmaries, orthopedic hospitals and the like, where certain classes of patients may be found in greater abundance than at the general hospital. The system of education by service as clinical clerk necessarily takes a student away from his school routine to a certain extent and lends itself readily for visits to such institutions even at a considerable distance from the school. It is possible, therefore, to use extramural and special hospitals for ward classes and in the service for clinical clerks, but, of course, the school should control the appointment of the instructors in charge of that work.

Only hospitals under complete university control should be used for undergraduate teaching. Other hospitals, so-called extramural hospitals, may, with advantage, be maintained for the training of teachers, for keeping up a spirit of emulation among teachers, for illustrating features of disease not often seen in general hospitals and for the instruction of graduates. As many extramural hospitals as possible should be brought into affiliation with the medical school, to provide for the development of graduate work, which now needs to have careful consideration. Hospital trustees, as well as the public generally, are beginning to realize that active educational relationships with medical schools are of the greatest benefit to the hospitals, the patients and the public.

8. *Departmental Coordination of Teaching.*—That there is need of greater coordination not only between the various clinical departments, but also between the clinical and laboratory departments is quite apparent. Of equal importance with deciding the place in the curriculum where the various clinical branches shall begin and recommending to the first-class medical schools the adoption of a uniform plan in this respect, is this question of departmental coordination of teaching. Too often it would seem that the relationship of a student to certain branches of his instruction is that of a school child who says, "I have finished such and such a study." Like the child, he says, "I have finished anatomy, histology, embryology," and literally puts it away until he must hurriedly resurrect it prior to a state board examination. This could be avoided if there was a coordination of the courses, step by step, the professor of physiology, for example, or of chemistry, emphasizing the practical relationship of his branch to the instruction in the clinical departments. So, also, whenever it is possible it would seem wise that students should be able to attend instruction at closely related periods of time in subjects that are intimately connected one with the other, for example, the anatomy and the physiology of the circulatory apparatus, and the physiologic action of various remedies on this apparatus.

Another matter, and one of great concern to medical students, to use a homely phrase, is how to decide when doctors disagree, and too often the statements of teachers conflict. That any teacher should be forbidden an expression of individual opinion in the course of his instruction would naturally not be tolerated, but the opposing view, if there is an opposing view, must be fairly stated, and consensus of opinion clearly given. Such "conflicts" can be avoided by frequent conferences either between the heads of the departments, or between the head of a department and his corps of instructors. In like manner, the repetition of courses can be prevented by similar conferences, and also by a rule that the head of each department shall file in the dean's office, at the beginning of each semester, a schedule of the courses his department proposes to offer.

There is marked advantage also in the use of combination courses, like those inaugurated at McGill and Harvard, in which the professors of medicine and of pathology unite to demonstrate ante-mortem diagnoses and post-mortem findings. Similar combinations between the departments of surgery and anatomy in the study of fractures and dislocations, and of physiology and medicine in the study of the heart and circulation, have been given in other schools.

In order that students shall realize the importance of the "head specialties" (eye, ear, nose and throat) in their study of general medicine and surgery, departmental coordination is of particular advantage. Thus, for example, the teaching of ophthalmology should be in close relationship with that of physiology (the physiology of vision); with that of neurology (ophthalmic neurology); with that of clinical medicine (medical ophthalmoscopy); with that of surgery (problems of increased intracranial tension, ocular interpretations of spinal and cerebral lesions). An excellent plan is suggested in one report, which permits the head of the department of ophthalmology to invite the heads of the departments of clinical medicine and surgery to give portions of the lectures and demonstrations, which in the last-named branches must necessarily be concerned with the results of ophthalmic examinations. The same plan would apply to other specialties.

In general, all laboratory teachers will have their own work and their own problems, though many of the latter will be purely scientific. At all times the clinical workers should be sure of cooperation and assistance from the laboratory staffs. It would be desirable if they could at times move into the chemical or physiologic laboratory, or even that of physics, in order to become more familiar with other work, or to obtain suggestions as to how they may attack some fundamental problem. Our long and rigid courses and the fact that all our vacations come at the same time

prevent this practice from being as much in vogue as it is in Europe.

9. *Limiting the Practice of Clinical Teachers.*—The recently formulated question of limiting the practice of clinical teachers deserves careful consideration. The members of the committee are unanimous in expressing a sympathetic interest in the educational experiment of providing full-time clinical professors in medicine, surgery and pediatrics now being tried out at the Johns Hopkins Medical School, an institution having such admirable facilities for it. In fact, the principle that the practice of clinical teachers should be restricted appears to have general acceptance. In determining to what extent that practice should be limited, there are two extremes somewhere between which it is possible to construct a rational scheme. On the one side is the whole-time requirement as adopted at Johns Hopkins, and on the other side is the condition in some medical schools where clinical teachers are so busy with their private practice that their teaching is bady neglected. Opinion is by no means unanimous that the whole-time requirement is ideal, but even if it is ideal, such a requirement could not rationally be advised at present owing to the fact that so few of the medical schools are adequately financed to put it into effect.

On the other hand, it is imperative that we get away from the other extreme. An extensive time-consuming private practice, with the minimum of teaching responsibility, must give place to the teacher whose chief business is to instruct medical students, who chooses the work because he loves it, and who is qualified by education and by personal experience in experimental work to be a productive teacher. Given such teachers, the limitation of their practice will take care of itself. A matter of the highest importance is to build up a system of organization that will develop for the future the best clinical teachers. Is the best scheme one that will demand a restriction of private practice to hospital consultations, or should private practice be prohibited entirely? Is a certain amount of private practice essential to develop the best clinical teachers? Is some private practice by clinical teachers essential to keep medical education in sympathetic touch with the human side of medical practice? Will the placing of clinical chairs on a full-time basis result in a gradual separation of medical teachers from perhaps some of the most vital problems of active medical practice? These are some of the questions which should be considered in the discussion of this subject.

IN CONCLUSION

Whatever may be said regarding the practicability of limiting the practice of clinical teachers, the other propositions dealt with in this paper have to do with improvements which are well within the reach of the majority of medical colleges. To construct a reasonable working standard for immediate adoption and another more ideal standard for adoption sometime in the early future, is the chief function of this Committee on the Reorganization of Clinical Teaching. This committee will doubtless receive much valuable aid in its task from the discussions at this conference.

The Primal Aim.—For the state as for the individual, health is the first postulate of prosperity and prosperity should be the first object of scientific government.—Ronald Ross, "The Prevention of Malaria."

THE UNIVERSITY AND HIGHER DEGREES IN MEDICINE *

GEORGE E. VINCENT
President, University of Minnesota
MINNEAPOLIS

The university has hardly assumed responsibility for one problem of medical education before it finds itself confronted by other demands in the same field. There were good reasons why institutions of higher learning should undertake the conduct and standardizing of undergraduate training in medicine. The proprietary medical schools of the older type had rendered valuable pioneer service but were reaching the limits of their efficiency. Large resources of laboratory, clinic and endowment were needed to supply proper facilities for medical education of the newer type. The university was in a position to do much if not all that the situation demanded. Modern medicine is wholly dependent on the fundamental sciences of physics, chemistry and biology. The university was already equipped to furnish the necessary preparation in these departments. There was obvious economy in an oragnic connection between medicine and other university disciplines. So, too, many subjects less fundamental but distinctly ancillary were already included in the university curriculum and could be used to strengthen and enrich the medical courses. Furthermore, the general atmosphere of investigation and professional teaching which characterizes the university environment was singularly favorable to the proper development of research and instruction in the medical sciences.

In the university community it was also easier to foster the altruistic ideals which ought to guide and inspire the medical profession. Important, too, was the fact that the university stands as a disinterested social agency, aiming primarily, not at offering special privileges to individuals, but at rendering service to the public. By creating standards and applying tests it tries to protect the community against incompetent and unscrupulous exploiters of public credulity and confidence. It was right and inevitable, therefore, that the university should assume chief responsibility for the organization and standardizing of undergraduate preparation for the medical profession.

The rate at which modern science is developing is almost disconcerting. This is conspicuously true of the progress of medical science and technic. This growth is, to be sure, beneficent, but from an administrative point of view its rapidity and the insatiable demands which flow from it have a touch of malignity.

The undergraduate curriculum cannot begin to include the new knowledge. Specialization here, as in many other fields of human investigation and experience, is not to be avoided. From the starting point of a fundamental general training men must devote themselves to differentiated subjects of inquiry and an appropriate technic. Out of this situation and the consequent needs of the profession come certain insistent demands. Able practitioners more and more feel the necessity of keeping abreast of the newer developments in medical science. It is of prime social

* Read at the Eleventh Annual Conference of the Council on Medical Education of the American Medical Association, Chicago, Feb. 16, 1915. The discussion of this paper appears under Society Proceedings, this issue.

importance that these men should be afforded every available opportunity.

There are other practitioners whose professional education has been defective. These men are desirous of making up lost ground and bringing themselves nearer to the better standards of to-day. Both individual need and social welfare suggest the value of aiding men of this class. Again, an increasing number of medical graduates appreciate the necessity of making a thorough preparation for a specialty. They require something more than brief and fragmentary courses; they desire continuous, advanced and authoritative instruction as well as opportunities for investigation. Last of all, another group of students who are particularly interested in research and in teaching as careers are seeking thorough preparation and disciplinary training in the best methods of original investigation. Finally, there is a growing public demand for special service and for some way of knowing how to tell the qualified from the pretenders.

The same reasons that led universities to take over undergraduate medical teaching now seem to justify them in trying to meet the other demands which have just been enumerated. There can be no doubt that the university equipment and environment afford the best opportunities for doing these newer things. It is especially important that right standards should be gradually worked out. The university is in a position to create and protect such standards as no independent group can hope to do. These standards, it is true, cannot be formulated over night and enforced on the public. There must be careful study and matured experience, before anything at all fixed or authoritative is promulgated. Yet at the outset certain ideals and tests may be set up as a basis for gradual, well-considered elaboration. The university has at the beginning this advantage: It can provide an existing prestige and give immediate support to any initial requirements that may be agreed on. University social authority may well provide a better basis for public respect for the medical profession and particularly for those types of special expertness with respect to which the public feels the need of standards of appraisal.

The allusion to university prestige should not be misinterpreted. There are other ways in which centers of authority may be created. For example, the newly organized American College of Surgeons is an interesting and significant attempt to create a new social agency of prestige. There is every reason to believe that in time this and similar colleges will exert an important influence.

In the meantime, the universities have a power which may be utilized at once. It may be noted further, that the European war and the conditions which are likely to exist for a long time after peace has been proclaimed afford American universities opportunities so obvious and insistent as to constitute almost obligations to undertake graduate work in medicine.

The brief courses now known as "postgraduate" or "polyclinic courses" suggest the need for what may be called medical university extension. The value of courses of this kind cannot be questioned. It is only when such courses are superficial, and when they are made the basis for certificates and diplomas of a spurious specialism that they become a danger to the profession and a menace to the public. It seems to be agreed that the so-called "postgraduate" and "polyclinic courses" as conducted in certain large cities of the United States have been distinctly useful. If the university is to do its full duty by medical education courses of this character will have to be provided. In doing this the university will be following logically the development of modern university extension. In this field commercialized education must yield gradually to publicly endowed instruction. Correspondence courses afford a case in point. Universities are providing these courses on a university rather than a business basis.

"Short courses," notably in agriculture, have for some time been recognized as an important form of university extension. "Short courses" or "extra courses" in medicine would fit admirably into a plan of medical university extension. Special courses for this purpose will have to be established, for it seems to be generally agreed that the students who desire them ought not to be admitted to short sections or fragments of the regular undergraduate courses in the medical school. University plants are being utilized and university teachers employed in short courses in university extension. The same idea would be applicable to medical courses. Again, a special extension staff might be recruited and local centers organized under university auspices throughout a whole region.

The plan by which instruction of this kind is regularly conducted in forty-eight German cities is full of suggestions. The whole enterprise is centralized in Berlin, but local academies and teaching centers provide a net-work of medical extension throughout a large part of the German Empire. Beginnings of such a plan have been undertaken in Kentucky, and Wisconsin is reported to be contemplating a similar experiment.

In assuming responsibility for medical instruction of an extension type, the university should protect the public and should maintain standards by carefully differentiating between "practitioners' courses," "extra courses," "summer courses," or whatever term may be employed, and courses of an advanced and genuine graduate character. The use of the term "postgraduate" is unfortunate and ought to be abandoned. It is a source of constant confusion. Postgraduate applies to the student and is a time designation; the emphasis is on the *post;* while the word *graduate* has come to describe a kind of advanced work distinctly above and beyond the undergraduate type of instruction. It is to be hoped that some such term as "practitioners' course" or "polyclinic course" may be substituted for the term postgraduate.

The university should also raise the minimum length and improve the character of courses for which any sort of recognition will be given. The university medical school should in every feasible way make its laboratories and clinics accessible to ambitious and intelligent practitioners, but the institution should be extremely careful with respect to any formal recognition which is given to individuals who take advantage of these opportunities. It is the duty, therefore, of the university, to guard conscientiously the issuance of formal certificates of proficiency. The public will not sharply distinguish between such certificates and the diplomas which may be granted for work of a very different character and quantity. Harvard has set an admirable example by announcing that after June 1 of this year certificates

will be isued only to students who have spent at least eight months in full time study.

Although universities recognize their obligation to provide "practitioners'" or "polyclinic" courses, they are peculiarly concerned in the development of advanced or truly graduate instruction. Teaching of this type must be tested by the best standards that prevail throughout the graduate school of the university. The instruction should be planned for practitioners or other graduates who can devote at least a year to advanced study. The many American physicians who have been accustomed to spend a year in study abroad represent a group who more and more will look to American universities to provide the opportunities which have heretofore been sought in Europe. True graduate policies will concern themselves most of all with those students who are able and willing to devote a period of two or three years to advanced study and research. Such men would be preparing themselves for specialties based on careful scientific investigation, rather than on mere technical skill. Advanced instruction of this sort would also appeal to those who are interested in the career of investigation and teaching.

One of the strongest appeals which this graduate work makes to the university is the hope that it will increase the supply and improve the training of medical teachers. Is it too much to expect that in the groups of advanced students there will begin to appear that longed-for clinical teacher who will be willing to devote himself to medical investigations and teaching on terms comparable with those on which his laboratory colleagues can be induced to devote their lives to this career? Is there no escape from the idea that all clinical teachers must have training in private practice?

Furthermore, the university would welcome advanced graduate teaching because of its reaction and influence on the medical school as a whole as well as on the graduate school of the entire university. It must not be forgotten that medicine has long since ceased to be a drugging art and has become one of the biologic sciences. The formal recognition of medicine as one of the legitimate subjects of graduate work would have an important bearing on research and advanced teaching in every department of the university.

It is hardly necessary to do more than mention the influence of the graduate work on university hospitals. The clinical material would be more effectively used, and the staff, including the interns, would be stimulated. This would involve better and more intelligent service for the patients themselves.

In planning graduate work of an advanced sort the university must not be misled by analogies with other types of graduate teaching. It would be an unfortunate mistake prematurely to impose on advanced medical instruction a fixed curriculum. Even the undergraduate curriculum has suffered from traditional rather than rational growth. In the words of Dean Blumer: "The growth of most medical curricula has been stalactitic rather than logical, by accretion rather than by selection." The graduate curriculum ought not to be allowed to suffer from this tendency. As a matter of fact the conditions are all against a formal and fixed curriculum. The number of students would not in many cases justify the organization of regular classes and courses. Moreover, the expense would be prohibitive and there would not be enough teachers available. The work, therefore, for a considerable time must be informal and individual, of the apprenticeship type. The graduate students would naturally constitute a corps of men spending the larger part of their time in close personal contact with the leading men of the medical school staff. The work, moreover, ought to involve the development in the student of resourcefulness and individual initiative. He should have, under proper regulation, the fullest possible access to laboratories and clinical material. He should be set problems and held to responsibility. In other words, the work should be conducted in the true graduate spirit rather than in the didactic fashion once traditional, if not appropriate, in the undergraduate courses.

The neccessarily individual character of graduate work in medicine has important implications and consequences. Undergraduate teaching demands class instruction and centralized clinical facilities. Graduate activities must lay the stress on problems, specialized opportunities and leadership in investigation. Graduate students may, therefore, be encouraged to seek men, materials and methods whenever these are to be found, provided only that the direction and oversight of competent investigators can be guaranteed. Various institutions, public and private, can be utilized and credit toward higher degrees or certificates granted for work done under accredited auspices. The University of London and the University of Cambridge recognize in this way certificates from certain cooperative clinics in London. The university should make its object the discovery and organization of all possible agencies for giving graduate students the best opportunities for individual work under the most stimulating conditions.

The social and economic basis for graduate work deserves consideration. The increasing cost of medical education to the student as well as to the university has been frequently challenged. It is asserted with a good deal of force that the body of medical students represents economic selection rather than the survival of the best type of ability. The proposal, therefore, to add two or three years to the period of medical preparation raises serious questions. The pressure on graduates to enter medical practice is naturally strong. When a successful practice has been secured the temptation to maintain this is hard to resist. Nevertheless it is well known that many men, after four or five years of practice, surrender a large part of the advantages gained and spend a year or more in foreign study.

There are other men who seem ready to continue graduate work after taking the first degree in medicine. Some of these men have private means, but most of them can continue only with the aid of a stipend. It seems likely, therefore, that, as in the case of all graduate work, fellowships and teaching assistantships will have to be provided by the university in order to cooperate with the men who are willing to devote so long a time to thorough medical preparation.

The employment of such fellows and assistants is not to be regarded as a device for supporting graduate students at the expense of the undergraduates. In many ways these fellows would be helpful to the younger students, could give individual attention to them and perform a useful function in supplementing the work of the regular staff. The further possibility of discovering and developing special teach-

ing aptitudes in these fellows will be readily apparent.

The University of Minnesota Medical School has made a beginning in establishing teaching fellowships. Such fellowships involve ordinarily an appointment for three years on a stipend of $500 for the first year, $750 for the second, and $1,000 for the third. It is too early to make prediction as to the outcome. All that can be said is that for the present year five or six excellent men have accepted these fellowships; the outlook is distinctly promising.

Graduate medical work ought to have an important bearing, as has already been suggested, on the problem of securing medical teachers; especially in developing a new type of clinical teacher. Heretofore no career other than practice has been open to the men whose special interests were in the clinical field. Teaching with them has been more or less incidental to the practice of their profession. Medical education owes a great debt to hundreds of practicing physicians who have given generously of their time and effort to the building up of medical schools in the United States. But it is recognized that the conditions are changing and that the old plans must yield to new policies and practices. The payment of clinical teachers is one of the most important, as it is one of the most baffling, of the present problems in medical education. The experiment at Johns Hopkins University Medical School and the proposed experiment at Washington University will be watched with much interest. What effect a high clinical salary will have on university administration generally is hard to say. If a large clinical salary is to be regarded merely as a temporary adjustment to existing conditions, the difficulties may not be serious but if such a salary scale is accepted as normal, the effect not only on laboratory investigators and teachers, but on the members of the faculties in law, engineering, and other professional schools will be watched with considerable solicitude by those who are responsible for university budgets. If, therefore, a new type of clinical teacher can be developed who will measure himself, not with successful practicing physicians, but with his colleagues in the university, a great advance will be made in medical education. Certainly the development of graduate work will aid rather than hinder such a solution. This should not be interpreted to mean that the practitioner is to be ultimately eliminated from medical teaching, especially from graduate work in medicine. So far as one can now see, such teachers will always be needed for rounding out the clinical curriculum, and notably for directing graduate work in the various special fields.

The policy with regard to university degrees for graduate work should be conservative. There is danger of putting too much faith in degrees. One must have a good deal of sympathy with those who rebel against formal academic honors. Some one has said: "A degree is a title of dignity, not a badge of proficiency." There is some support for the contention that the degree is neither of these things. The academic world appraises pretty accurately the value of a degree. The degree of Doctor of Philosophy, for example, is not deemed a token of proficient scholarship or of great achievement. It indicates merely that one has become familiar with scientific method, has been given a preliminary apprenticeship in the technic and spirit of advanced work, and has been regarded by a group of scholars as giving promise of ability to do independent and authoritative work. The Ph.D. is a license to undertake a task rather than a guarantee that one will accomplish it. Degrees nevertheless have undoubted value. They are made the basis for academic selection. There is danger no doubt of applying such a standard too rigidly. Nevertheless, to appoint to an academic position a man who has not received his doctor's degree is regarded either as a questionable practice, or as a distinct tribute to the individual's capacity and independent resourcefulness. Moreover, the degree is one of the devices for recognizing and maintaining standards. In the medical field it would be a way of indicating that a medical teacher, for example, must be more than a practitioner. With the introduction of graduate work in medicine it would become the custom not to appoint as a teacher or investigator one who had not done advanced work of the sort which could be recognized by a degree.

There is room for difference of opinion as to the wisdom of multiplying special degrees. In behalf of such degrees it may be urged that they would have a special and distinguishing character that would indicate correctly the type of work for which they were granted. On the other hand, there is danger of misunderstandings and of unscrupulous imitation when the number of different degrees becomes so large that the public is confused. The tendency in academic life seems toward a few well-understood marks of distinction. Such degrees fall into three classes: first degrees, that is, various forms of the Bachelor's degree; second degrees, the several Master's degrees, and third, the degree of Doctor. Here the standard graduate degree is the Doctor of Philosophy. The degree of Doctor of Public Health is ranked with Ph.D. Medical degrees are not quite in accord with academic practice. To be sure, we now have a baccalaureate basis of B.S. for the Medical degree and it is equally true that in length of time the M.D. is nearly equivalent to the Ph.D. So far as academic standards go, however, the M.D., from the graduate point of view, approximates the M.S. It would be convenient if there might be, as in England, the degree of Bachelor of Medicine, to be followed by the degree of Doctor of Medicine, as a higher degree, but it would be quite futile to attempt such a readjustment. It would be repugnant to the general traditions of American life and especially offensive to the medical profession.

If higher degrees are to be granted they should be given only in recognition of full-time work extending over a period of two or three years. In other words, the academic standards for higher degrees ought to be maintained. As to the character of these degrees, it would seem wise to employ Master of Science, Doctor of Science, and Doctor of Philosophy to appraise the different types of graduate work in medicine. These degrees have a well-recognized status and would bring medical graduate work into complete accord with the other graduate work of the university. In case it seemed well to recognize the different specialties, the diploma itself might indicate the particular field in which the work toward the degree had been done.

There is one important reason for using the conventional degrees for recognition of advanced work in medicine. The distinction between laboratory and clinical work would be less sharply drawn than it is at present. This seems to be highly desirable for it is more and more obvious that laboratory work which is not in constant relations with the clinical side is likely to become abstract, academic, and sterile. It is quite true, on the other hand, that clinical work that does

not keep close to the laboratory is in danger of tending toward empiricism and mere technic. It would be a great gain if graduate work in medicine and the degrees which were granted in recognition of it could consciously emphasize the importance of keeping the laboratory and the clinical sides in constant and reciprocal relationship.

In conclusion, we may summarize the situation as follows: The university must assume its obligations toward all types of medical education; it must distinguish consciously and carefully between medical extension and genuine graduate work in medicine; it must develop graduate courses in an informal and flexible way so as to utilize accumulating experience wisely, take advantage of all facilities, and avoid a premature conventionalizing of advanced work in medicine. Finally, the university should adopt a cautious, conservative policy with respect to higher degrees; it should aim at coordinating graduate work in medicine with the graduate work of the institution as a whole, and should recognize this work in practically the same way that all types of advanced study are signalized.

COURSES AND DEGREES IN PUBLIC HEALTH WORK *

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The educator interested in preparing students for service in public health work must take several factors into account. First of all, the education must be for service. Furthermore, the quality of that service is exacting and of great importance to the community. In order, then, to be satisfactory, the education must be special, yet comprehensive. The saying that the student should know something of everything and everything of something applies here with particular emphasis. The underlying sciences which form the basis of preventive medicine are various, and therefore a satisfactory knowledge of the medical as well as the related sciences is necessary for success in a public health career.

Pehaps the next most important consideration is that the education for public health service may take one of four directions. The public health servant may be teacher, research scholar, technical expert or administrator. A survey of the field of public health work as it exists in this and in other countries will disclose the fact that the successful workers are dedicating their lives to one of these four general subdivisions. Some peculiarly fitted by nature and temperament are teaching the subject; others are sacrificing much to the call of laboratory research; others again are devoting their energies to the technical art of one of the sanitary sciences, while many must be administrators. Occasionally we find a man with special endowments who combines several of these phases and is at once administrator and research student, technician and teacher; but as a rule it will be found desirable if not necessary to place emphasis on one line of activity in order to achieve success—at least to achieve distinction, which currently passes as success. There is much overlapping and interlocking, for often the research student becomes teacher; the technical expert becomes administrator.

With these points in view, the next matter requiring our attention is that since the education is to be for service, it must be practical, but a practical art based on sound science. The only satisfactory practical work done in public health lines is accomplished by those who have a secure scientific foundation. It is pitiful to watch the vain strivings and waste of energy, time and money by public health officers who have an imperfect or incomplete knowledge of the sciences on which their work is based.

This brings us to another important consideration, and that is, that the object of public health work is the prevention of disease. It is impossible successfully to prevent disease without a knowledge of disease. Therefore, the fundamental medical sciences must form the background of a good education for public health service. By this I do not mean the orthodox medical curriculum that has for its object training for the practice of medicine. The practitioner of the art of medicine must make a special study of diagnosis and treatment. When a patient consults a physician, he wants to know two things: First, "What is the matter with me?" and second, "What can be done to relieve me?" The successful doctor then becomes a specialist in the recognition of disease and the use of remedial measures. His object is to cure rather than to prevent. On the other hand, the public health officer is interested more in the mode of spread and methods of preventing disease. The two points of view are quite distinct.[1]

The medical curriculum, already overcrowded, has little time for sanitation and hygiene, much less for vital statistics, epidemiology, public health administration, quarantine, industrial hygiene, sanitary engineering, management of epidemics, rural and dairy hygiene, milk supplies, food adulteration, sewage disposal, water purification, heating, lighting and ventilation, housing, social service work, school hygiene, infant mortality, public health laboratory methods, and a number of other subjects on which an efficient health officer must be well informed.

Public health work is therefore becoming, in fact, has already become, a separate profession. It has split off from medicine just as medicine long ago split off from the priesthood. Public health service, as a career, must be made an end in itself. It is often difficult and sometimes impossible to bend the physician into a health officer. The ordinary medical training does not qualify a person to be a health officer any more than the training suitable for public health service would qualify a man to practice medicine. Sanitation, then, has become more than a specialty; it is a profession.

The time has long gone by when the physician can spend a few hours from his busy day to look after the duties of the health office. The situation demands the entire time and energy of those who consecrate their lives to the public welfare. In order to attract capable men to the new profession, it is important that the health officer should have an assured tenure of office with adequate pay and freedom from politics.

These facts are stated in order to throw force into my contention that special degrees should be provided

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1. The modern practitioner of medicine is fast adding prevention as one of the tools of his equipment. The future student of medicine will make a study of health and how to maintain it, as well as a study of disease and how to cure it. However, the point of view of the practitioner of medicine is personal and particular, while the point of view of the sanitarian is communal and general.

for those who qualify for public health service. In this way the fundamental distinction between the health officer and the physician will be borne into the consciousness of lay and professional minds.[2]

A school for health officers in a university organization should occupy a position as separate as that of the medical school, the dental school, the engineering school or the law school. A school for health officers needs a separate faculty, but also needs cooperation with other schools in the university. Thus it needs sanitary law from the law school, sanitary engineering from the engineering school, oral prophylaxis from the dental school, the medical sciences from the medical school. A school for health officers, in fact, must reach out more widely than the resources of any university. Thus, it needs the contagious disease hospital; it needs the city board of health, the state department of health and the federal Public Health Service, for instruction, for inspiration and for opportunities that lie without the bounds of any university. A school for health officers also interlocks with many private and semipublic philanthropic organizations.

All this is a far cry from the practice of medicine, and emphasizes the point I wish to make, that the public health officer needs a separate and special training and should have a separate and special title or degree to designate his special qualifications.

The commissioner of health of a large city cannot be qualified in all the sanitary sciences. He cannot be an expert diagnostician, a good statistician, a competent engineer, a skilled laboratory technician, a capable sanitary lawyer as well as a good administrator, yet he must know something of all these. The commissioner of health of a large city has a corps of specialists to help him in each of these separate fields. On the other hand, the health officer of the small community must be a Jack of all trades. The great point here is that the latter shall be qualified to know his limitations and be ready to call on experts who are furnished by the state and government to assist in troublesome, novel or particularly dangerous situations. To discuss this phase of the subject would carry us far afield; but the facts are brought out here to show that there is need of several kinds of degrees in public health work, such as certificates, diplomas and doctorates.

The certificate or diploma in public health should be used to designate those who have the minimum training believed necessary to carry on public health work. This means at least four years of special study equivalent to college grade; while the doctor of public health degree should be limited to those who have longer training and have in addition carried on original research in some branch of sanitation and hygiene.

How the problem is met may perhaps best be approached by describing a special instance. Permit me, therefore, to tell you how Harvard University has endeavored to solve the problem. At present, the certificate in public health (C.P.H.) and the doctorate of public health (Dr.P.H.) are given in Boston. The certificate in public health is issued by the School for Health Officers of Harvard University and the Massachusetts Institute of Technology, while the doctorate of public health is one of the higher degrees offered by Harvard University.

2. At this point it should be made clear that there is a distinction between the medical officer of health and the health officer, and it should be remembered that it is only the latter of whom we are now speaking, for the country needs health officers.

SCHOOL FOR HEALTH OFFICERS

The School for Health Officers is an enterprise conducted by Harvard University and the Massachusetts Institute of Technology acting in cooperation through an administrative board appointed for this purpose by both institutions. Prof. William T. Sedgwick is chairman of the administrative board, Prof. G. C. Whipple is secretary, and Prof. M. J. Rosenau is director of the school.

The object of the school is to prepare young men for public health work and especially to fit them to occupy administrative positions as health officers, or members of boards of health, or sanitary agents, district health inspectors or technical experts of health organizations.

To this end, lectures, laboratory work and other forms of instruction are offered by both Harvard and the Massachusetts Institute of Technology and by special instructors from national, state and local health agencies. The School for Health Officers also enjoys close cooperation with the Harvard School of Tropical Medicine, so ably presided over by Prof. Richard P. Strong.

The primary object of the School for Health Officers is to provide the scientific groundwork in the sanitary sciences which underlies efficient health administration. The country needs leaders in every community fitted to guide and instruct the people in the art of hygienic living; qualified to direct the expenditure of energy, time and money in public health work into fruitful channels, and able to initiate plans to meet novel conditions as they arise.

The requirements for admission are practically the same as those for Grade A medical schools, that is, two years of college work including physics, chemistry and biology, French and German. Such students are then required to spend not less than two and usually three years in the School for Health Officers in order to get the certificate in public health (C.P.H.).

Students, of course, may be admitted to advanced standing; graduates in medicine of recognized schools as well as bachelors of science, or biology and public health, of the Massachusetts Institute of Technology, who are likewise admitted on their records, may achieve the certificate after one year's work. Candidates for the certificate are not required to have the medical degree, but must have credits in the fundamental medical sciences. While the medical degree is not a prerequisite for the certificate in public health, candidates are advised to get the medical degree before specializing in public health work. Experience teaches that preferment for employment and advancement to the higher positions come more readily to those who have the medical degree.

The certificate in public health is not granted unless the candidate has satisfactorily completed courses in the following fundamental subjects: anatomy, physiology, pathology, bacteriology, biologic chemistry, sanitary biology, preventive medicine and hygiene, demography and sanitary engineering.

Furthermore, every candidate for the certificate in public health must make a sanitary survey of some city or town and submit a report on it. Special emphasis is laid on this sanitary survey on account of its practical importance.

The courses available in the School for Health Officers are not restricted to those stated in the catalogue, but may include subjects in any department of Harvard University or the Massachusetts Institute of

Technology, provided they are in harmony with the objects of the school. Certain special courses are given by instructors not otherwise connected with either institution, and practical work is taken in city, state and national health departments and in the hospitals of Boston. All such work in each instance is conducted under suitable supervision and restrictions. At the completion of his course, every candidate is required to submit to a general oral examination by the administrative board in order to obtain the certificate in public health.

DOCTOR OF PUBLIC HEALTH

This is one of the higher degrees offered by Harvard University. It corresponds in certain particulars to the doctorate in philosophy. To obtain the doctor of public health degree (Dr.P.H.), the candidate must have a satisfactory knowledge of the medical sciences as well as the related physical and biologic sciences that form the basis of preventive medicine. Candidates for the degree of doctor of public health are advised first to take the course leading to the degree of M.D.

Graduates in medicine who have a knowledge of sanitary engineering, vital statistics and preventive medicine must spend not less than one year on a special subject, and present an acceptable thesis containing results of original research in order to gain the degree of Dr.P.H. Each candidate must, in addition, make a sanitary survey of a city. While one year in residence is the minimum requisite, it is impossible without special experience and qualifications to accomplish all of the requirements in this short time.

While candidates for the degree of Dr.P.H. are advised first to take the medical course, the medical degree is not a prerequisite. Those who desire to specialize in sanitary engineering, sanitary architecture, sanitary biology, sanitary chemistry, demography or some other branch of public health work may receive the degree after no less than four years of graduate work in approved subjects, including an acceptable thesis embodying the results of original research.

The degree of Dr.P.H. does not rest on any computation of time, or on any enumeration of courses; although a student cannot become a candidate until he has, in the judgment of the committee on the degree, fulfilled the requirements of residence and study. The degree is not given for the mere reason of faithful study for a prescribed time or for fulfillment of a determinate program, and never for miscellaneous studies; but only on the ground of long study and high attainment in the special branch of learning manifested not only by examination, but especially by the thesis.

The oral examination consists of a searching inquiry in the fields related to the subject of the candidate's thesis, and furthermore, includes the following subjects: communicable diseases, immunity, heredity, demography, sanitary engineering, sanitary law, hygiene, sanitation and preventive medicine.

The following list of titles illustrates the nature of the work of the candidates for the degree Dr.P.H. at Harvard University:

E. B. BEASLEY, A.B., M.D., DR.P.H.: An Investigation on the Permeability of Slow Sand Filters to Bacillus Typhosus, *Jour. Med. Research*, 1911, xxv, 101.

A. I. KENDALL, S.B., PH.D., DR.P.H.: Certain Fundamental Principles Relating to the Activity of Bacteria in the Intestinal Tract: Their Relation to Therapeutics, *Jour. Med. Research*, 1911, xxv, 117.

E. H. SCHORER, B.S., M.D., DR.P.H.: Experimental Studies on Milk, *Jour. Infect. Dis.*, 1912, xi, 295.

H. L. AMOSS, S.M., M.D., DR.P.H.: Organic Matter in the Expired Breath, with Special Reference to Its Inhibiting Power on Oxidizing Ferments, *Jour. Exper. Med.*, 1913, xviii, 132.

W. G. ANDERSON, M.A., M.Sc., M.D., DR.P.H.: Heat, Moisture and Carbon Dioxide as Factors in Fatigue, Part published under title of On the Agitation of Air Rich in Carbon Dioxide, A Problem in Ventilation, *Med. Times*, January, 1914.

L. W. HACKETT, A.B., M.D., DR.P.H.: The Application of New Methods to the Study of Bacteria in the Air (not published: on file in the library).

W. D. FROST, S.B., S.M., PH.D., DR.P.H.: The Bacteriological Control of Public Milk Supplies, *Wisconsin Acad. Sc. Rep.*, 1914, xvii, Part II.

M. R. EDWARDS, M.D., DR.P.H.: The Bacteriological Standardization of Disinfectants, with Especial Reference to the Presence of Organic Matter.

J. P. SIMONDS, A.B., M.D., DR.P.H.: Studies in B. Welchii, with Special Reference to Classification and to Its Relation to Diarrhea (in press — Rockefeller Institute Monograph).

SPLENECTOMY IN PRIMARY PERNICIOUS ANEMIA

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Since Addison called the attention of the medical profession to the symptom complex called by him "idiopathic anemia," there has been an immense amount of study devoted to it. In spite of this, until very recently, it has continued to be one of the most hopeless conditions with which we have been called on to cope. Since the middle of 1913, occasional case reports and some lengthy articles have appeared in current medical literature concerning the treatment of this disease by splenectomy. Inasmuch as they have nearly all appeared in German magazines, that this work seems to be of great importance and that up to the present time a careful tabulation of the information on this subject has not been made in THE JOURNAL, it appears that the study which follows will be of profit.

The inquiry naturally divides itself into a consideration of:

1. The cause or causes of primary pernicious anemia.
2. The normal function of the spleen.
3. The effects of splenectomy.
4. The clinical results.

CAUSE OF PRIMARY PERNICIOUS ANEMIA

Primary pernicious anemia may be defined as a systemic disease, characterized by a blood picture which shows a high color index, a decrease in number of the erythrocytes, and the constant presence of poikilocytes, megalocytes, nucleated red cells, especially megaloblasts, and polychromatophilic red cells. There is progressive bodily weakness, the lemon-colored skin, digestive disorders, spinal cord symptoms, which may be tabetiform, paralytic or spastic in character, and no pronounced enlargement of the spleen or liver. The etiology is not settled, but the disease must be due to (1) a toxin, which destroys the cells or inhibits their development; (2) a disease of the blood-forming organs, or (3) an increased destruc-

tion of the blood cells due to an overaction of the blood-destroying organs.

The Toxin Theory

There is much that leads one to feel that the first or toxin theory is responsible in many cases. Faust and Tallqvist[1] have proved that the anemia caused by the *Bothriocephalus latus* is due to a powerful hemolytic substance, cholesterin oleic acid, which is formed in the proglottis of the parasites. The oleic acid is split up in the stomach; it is combined with alkalies in the intestine, and forms a soap which, when absorbed into the circulation, injures the erythrocytes. K. R. and R. Seyderlein,[2] in some work reported this year on anemia in the horse, have shown that it is due to a substance called by the authors "oestrin," which is elaborated by a parasite, the *Gastrophilus equi*. The anemia may be produced artificially by the injection of a watery extract of these parasites; it is exclusively specific for the horse. It is transmissible from the blood of a diseased horse to a healthy horse, and even the blood of the latter may transmit the disease.

The same arguments apply to hookworm anemia. This was originally supposed to be due to small hemorrhages occurring in the intestines, where they had been injured by the worm, but recently the toxin theory of this disease has been advanced. This is explained as being caused (*a*) by a toxin secreted by the worm, or (*b*) by a toxin produced by intestinal bacteria whose absorption occurs through the damaged epithelium (Nicoll[3]).

Both oleic acid and the "oestrin" of Seyderlein belong to the group of unsaturated fatty acids, and this suggested the thought to J. H. King,[4] who was working in the Eppinger clinic, that the human organism in disease may produce hemolyzing unsaturated fatty acids and if so, the question whether the elaboration of these acids can be ascribed to any of the organs of the body. He directed his study toward the spleen as being the organ thus responsible.

Joannovics and Pick[5] had already ascertained that in chronic toluylendiamin poisoning a great excess of oleic acid was formed, and that after splenectomy in dogs,[6] there resulted a marked diminution in the building of these higher unsaturated fatty acids. They found the same condition to obtain in phosphorus poisoning.

King undertook a series of experiments on dogs in which the quantity of unsaturated fatty acids circulating in the blood was estimated by ascertaining their iodin combining powers, the cholesterins first having been separated from the total lipoids. He found in splenectomized animals an increase of total fats and cholesterins, but a great decrease in the unsaturated fatty acids as expressed by the iodin number. He carried out the same study in three cases of pernicious anemia in man, which came to operation and duplicated the results found in dogs. These findings are of great importance from a therapeutic point of view, as the ordinary fats and cholesterins are protective against hemolytic agents, while the unsaturated fatty acids are decidedly hemolytic in action, splenectomy being thus helpful in two distinct directions. He concludes as follows:

> In pernicious anemia, hemolytic jaundice, some types of catarrhal jaundice, and cirrhosis of the liver, the hyperactive spleen unfavorably influences the anemia through its regulation of the highly hemolytic, unsaturated fatty acids in the blood. Its removal, therefore, appears to be indicated. Splenectomy of itself, besides influencing the production of hemolytic unsaturated fatty acids, raises the percentage of antihemolytic substances in the blood, that is, the total fats and cholesterins.

It has been suggested, after consideration of the hemolytic effects of the poisons of intestinal parasites, that possibly other hemolytic anemias in man may be caused by chemical compounds which are formed in or reach the blood current via the alimentary tract. The amins, for instance, are known to be products of bacterial changes occurring in proteins under conditions which may obtain in the gastro-intestinal tract.[7] Of these compounds, tyramin is especially conspicuous. It has been isolated from putrid meat, cheese and ergot. Oxyphenylethylamin is produced from the amino-acid tyrosin by various races of bacteria, among them the *Bacillus coli communis*, a known inhabitant of the intestinal tract of man. Iwao of Japan produced in animals a severe anemia of the pernicious type by the injection of small doses of tyramin. No studies have yet been made to ascertain what effect splenectomy may have in controlling the effects of poisoning by this group, or of the poisoning occurring from those elaborated by intestinal parasites.

Is Pernicious Anemia Due to a Disease of the Blood-Forming Organs?

In the embryonal life of man, the spleen produces erythrocytes, but this production ceases at birth. The only source from which red cells are produced, in postnatal life, is the marrow of the long bones. Throughout life, a nice balance is kept between production and destruction, so that the normal number of 5,000,000 red cells per cubic millimeter of blood is constant unless interfered with by pathologic processes. The factors in maintaining this balance are unknown, except that the marrow reacts to various chemical and infective agents. It has been suggested that the spleen acts normally to some extent as an inhibitor of the bone marrow, sending forth some influence that keeps a check on red cell production. In pernicious anemia, there is usually found a hyperplasia of the bone marrow. This and the relative abundance of nucleated red cells seem to indicate that the blood-producing organs are regenerating cells at an increased rate. This, however, does not proceed at a rate to compensate for the destruction which is going on. It does not seem probable, therefore, that this is a disease of the blood-forming organs.

Is Pernicious Anemia Due to an Overaction of the Blood-Destroying Organs?

The duration of the life of a red cell is not definitely known under all circumstances, but it probably averages from two to three weeks. There can be no question that the spleen is the organ primarily responsible for the destruction of the worn-out red blood

1. Faust, E. S., and Tallqvist, T. W.: Arch. f. exper. Path. u. Pharmakol., 1907, lvii, 367.
2. Seyderlein, K. R., and Seyderlein, R.: Arch. f. exper. Path. u. Pharmakol., 1914, lxxvi.
3. Nicoll: Jour. Hyg., London, 1914, xiii.
4. King, J. H.: Studies in the Pathology of the Spleen, Arch. Int. Med., August, 1914, p. 145.
5. Joannovics and Pick: Ztschr. f. exper. Path. u. Therap., 1909, xii, 188.
6. Joannovics and Pick: Berl. klin. Wchnschr., 1910, xx.
7. This is summarized in Experimental Pernicious Anemia and Alimentary Intoxication, editorial, THE JOURNAL A. M. A., June 13, 1914, p. 1894.

cells. These worn-out cells give up their hematin to the spleen liver circulation. Bilirubin and biliverdin are formed. These are excreted via the bile to the intestines, in which bacterial action reduces them to urobilin in the urine and feces. Eppinger has devised a colorimetric method for this determination, and has laid great stress on the importance of this estimation in all diseases causing hemolysis. In fact, Eppinger and Ranzi state that they consider that enormous amounts of urobilin in the stool, rather than the icterus or spleen tumor, are the chief criterion to guide them in recommending splenectomy in hemolytic jaundice and associated conditions.

It seems to be quite probable that some hemolytic substances cause red cell destruction through an increase of splenic activity. It is possible that, as we become more familiar with the spleen and its function, we may find that it, like other ductless glands, the thyroids, adrenals and pituitary, may develop conditions of either hyperexcitability or hypo-excitability and that certain symptom complexes, such as Banti's disease, chronic family jaundice, Gaucher's disease and pernicious anemia, may be properly termed "hypersplenism" and others, polycythemia for example, "hyposplenism."

Just what happens if a condition of hypersplenism exists cannot as yet be definitely determined; whether it always results in an increased production of unsaturated fatty acids with consequent disintegration of the red cells, as the work of King seems to indicate, or whether there may be an increased cellular activity in the spleen itself, or if in some cases there may be a hemolytic effect from intestinal-formed toxins circulating in the general blood stream, or even some factor yet unthought of may be present, cannot now be stated. It is possible that no one pathologic condition is responsible for all cases.

As Moffitt[8] concisely says:

> I think we must, with Waitkin, realize that the infective agent or toxin of pernicious anemia may act differently at different times or that there may be splenic, lymphatic, hemolymphatic or marrow hemolysis. The shifting clinical pictures, the various reactions at different times to remedial measures like arsenic, blood transfusion, thorium X, salvarsan, splenectomy, the marked hemolysis in some cases, and its absence in others, the inconstancy of marrow reaction, all speak for a widespread influence of the poison in the economy with maximum effects apparent now in this organ, now in that.

Eppinger, in studying spleens removed for this disease, has emphasized the fact that the walls of the follicular arteries are thickened, thus causing a narrowing of their lumen, and that for this reason, the blood stream is turned directly into the interstices of the pulp. In one of the two cases in which I operated, the pulp seemed to be hyperemic, but there did not appear to be any marked increase of pigment in the splenic tissue. The other case showed little deviation from the normal. Moffitt reports having studied sections from eight cases in which operation was performed. He reports marked hyperemia of the pulp, little change in capsule or trabeculae, and variable conditions in the follicles. Eppinger feels that the change in the direction of the blood stream results in an increased phagocytic function of the organ.

We may summarize our present knowledge of the cause of primary pernicious anemia as follows: It is probably not due to a disease of the blood-forming tissue, namely, the red bone marrow. It probably is due to a toxin or toxins. This is undoubtedly the case in certain parasitic diseases, and it is probably true that bacterial action in the intestinal tract is responsible in some cases. King's work would indicate that an increase of the unsaturated fatty acids in the blood is present in many cases, and that they are hemolytic in action. The spleen appears to have a direct action in stimulating their production. It is probable also that in other cases there is a condition of hypersplenism with resultant (*a*) overproduction of an unidentified hemolytic substance, or (*b*) an increased cellular activity with resultant red cell destruction beyond the normal in the spleen itself, because of the change in the direction of the blood stream spoken of by Eppinger. Because of these considerations, splenectomy as a therapeutic measure was resorted to first about a year and a half ago in the Eppinger clinic, and it was very strongly advocated by Ranzi, who has done much of the operating for Eppinger, in an address delivered before various surgical societies during a trip made by him to the United States in April and May, 1914.

Granted that the spleen has an influence on the production of this disease, the query comes "Do we interfere with any other function of this organ which may be necessary for the well-being of our patients, if removal is resorted to?"

NORMAL FUNCTION OF THE SPLEEN

So far as we know, the functions of the spleen are as follows:

1. It retains the iron set free by destruction of blood cells, whereas the liver stores iron derived from food. These reserves are drawn on for the production of new hemoglobin.

2. It may have some effect on digestion. An improvement in appetite and stomach symptoms is usually noted after splenectomy in blood diseases.

3. The spleen usually enlarges and becomes hyperemic during the course of many infectious diseases. The well-known ague cake is an example. It has been thought that it might act as a protecting organ in systemic bacterial infections. Such a function has not been proved. Patients who have been splenectomized have passed through the various infectious diseases without special difficulty.

4. Experiments on chicken embryos indicate that the spleen exercises an inhibiting effect on the growth of neoplasms.

5. It may regulate the production of erythrocytes.

6. It most certainly destroys those that have reached the end of their usefulness.

We know that when other ductless glands are removed in their entirety, disaster overtakes that individual very speedily. Resection of a *portion* of the spleen is a very difficult piece of work, because of the great vascularity of this organ. The slightest tear in the capsule causes a very free flow of blood, and a temporary compression of the pedicle is dangerous on account of the friability of these tissues.

Mayo[9] has suggested that it may be possible by ligation of one or more branches of the splenic artery at the hilum so to reduce the blood supply as to cause

8. Moffitt: Boston Med. and Surg. Jour., clxxi, No. 8.

9. Mayo, William J.: Principles Underlying Surgery of the Spleen, THE JOURNAL A. M. A., Jan. 1, 1910, p. 14.

atrophy of the spleen after the manner in which this result is secured in cases of hyperthyroidism.

Dr. A. K. Steele, discussing Harris and Hertzog's paper, stated that of six patients operated on, four died, which would give this procedure a much higher mortality than splenectomy. Fortunately, a removal of the spleen does not cause disaster to the economy, and a splenectomy, while a serious operation, is perfectly feasible even in very ill persons, and it is not followed by serious after-effects.

This is probably explained by the fact that there are other organs which are able to compensate for the removed spleen. These are the accessory spleens, hemolymph glands and the thymus. True accessory spleens have frequently been described. The hemolymph glands are found in the thoracic and abdominal aggregations of lymphatic structures. Histologically, in addition to ordinary lymph follicles, there are found lymph sinuses and blood vessels, some of these sinuses being filled with red corpuscles. Cabot declares that in these sinuses the destruction of red corpuscles is considerable.

A number of investigators, notably Waitkin, have found that in dogs after splenectomy there is not only a great increase in size of the hemolymph glands, but also an increase in number. Pearce and Austin[10] found an increase of endothelial cells in the hemolymph glands of dogs following splenectomy, these cells being proved to have a phagocytic power over red cells after the injection of a hemolytic serum.

The thymus has been found to enlarge after splenectomy, and Boyer[11] regards the spleen and thymus as capable of functionally compensating each other. The presence and action of these accessory organs undoubtedly afford an explanation of the facts, first, that the spleen can be, and many times has been, removed without interfering with the well-being of the person operated on, and second, the gradual return of a patient suffering from pernicious anemia, who has been splenectomized, to a final hopeless condition after a marked improvement, immediately following the operative procedure. This was observed in one of my cases.

If we grant that splenectomy is indicated in the group of blood diseases whose presenting symptom is an anemia of the pernicious type, namely, primary pernicious anemia, Banti's disease, splenomegaly of the Gaucher type, chronic family jaundice and possibly Hanot's cirrhosis, it is proper to inquire as to the mortality of this operation. It is a serious piece of work, but the mortality is not high. Rodman and Willard give the mortality from operation in the first and second stages of Banti's disease at 12.5 per cent. The Mayo Clinic reported twenty-five splenectomies for all causes with two operative deaths. Griffin reports three operative deaths in eighteen cases for splenic anemia. Behling reports 8 per cent. mortality in seventy cases. Carsten reports a mortality of 18.5 per cent. in a collection of 739 cases of splenectomy for various lesions.

These figures show that the operative mortality is about that for abdominal neoplasms, the skill of the operator being the great factor for safety in this work. The first operation for primary pernicious anemia was done at Eppinger's request in March, 1913. I have found record of forty cases in which operation has been performed up to the present time; nine patients died either at operation or shortly thereafter. When one considers the desperate condition that some of these patients were in at the time of operation, this is not a high mortality. Both of the patients on whom I have operated had been confined to their beds for several weeks expecting death at any time. In this connection, it is well to bear in mind one very important advance in the therapy of this disease. Blood transfusion should be resorted to in all these cases prior to operation. It does not have a permanent curative effect, but it will bring up the blood count and tone of a patient so that the operative procedure can be carried out with much greater safety. This is a very practical procedure when a good clinical laboratory is at hand, since the method of using defibrinated blood has been perfected, and a classification of donor and recipient can be made after the method of Moss.

EFFECTS OF SPLENECTOMY AND CLINICAL RESULTS

Now the great question comes, "Is splenectomy worth while in primary pernicious anemia?"

What have been the clinical results? So far I have been unable to find a record of any cases that the surgeon has been willing to report as cured. There has been almost invariably an immediate and striking improvement in the blood picture. There is a rapid rise in number of erythrocytes and hemoglobin content, many nucleated red cells appear, and the Howell-Jolly bodies are found in abundance. Cells of the megalocyte type usually persist, and the blood does not resume an entirely normal appearance. The stomach symptoms are improved, and there is a decided gain in strength and spirits. A great sensitiveness of the long bones was present in one of my cases. This has been spoken of in other case reports and doubtless indicates a hyperemia of the bone marrow. Eppinger, Florcken and Mosse report cases in which the patients were clinically well after from six to nine months. Türk[12] gives the best summary of the question I have seen. He says:

> With pernicious anemia, splenectomy induces a marked change for the better, but the blood does not return to the normal type; the patients are much improved, but in none of the seven cases in which splenectomy has been done for pernicious anemia during the last ten months, has the blood picture returned to normal. But a remarkably rapid and thorough-going remission may almost be counted on in apparently moribund patients; it acts more rapidly than arsenic and as promptly as thorium, but it does not seem to remove the cause of pernicious anemia. The morbid spleen functioning is merely one link in the chain of factors causing the disease, but by removing it we make a gap in the chain, and even this is great gain.

There is one variety of this disease that should not be subjected to operation, namely, the anemia of the pernicious type developing in pregnancy. In these cases, which are quite rare, there is usually recovery after the pregnancy has been terminated. This subject is summarized by Schupbach.[13]

Emphasis must be placed on diagnosis in considering operative interference in these cases. No patient should be operated on until a negative Wassermann has been obtained; malaria and the anemias due to intestinal parasites must be excluded. Carcinoma of the stomach frequently gives an anemia of this clinical type, and even after careful clinical search has

10. Pearce and Austin: Jour. Exper. Med., 1912, xvii, 375.
11. Boyer: Ann. Surg., July, 1901.
12. Türk: Deutsch. med. Wchnschr., 1914, xl, No. 8.
13. Schupbach: Cor.-Bl. f. schweiz. Aerzte, xliii, No. 47.

been made, the first thing to be done after the abdomen has been opened is to make a thorough exploration of the abdominal viscera, and especially of the stomach, for neoplasms. For the sake of accuracy in our statistics, as well as scientific pride, cases of Banti's disease, Gaucher's disease, Hanot's cirrhosis, family jaundice and pernicious anemia should be carefully segregated and thus tabulated.

I operated in two cases of pernicious anemia in May, 1914. One of these was seen by Dr. Ranzi, who gave me courage to attack surgically what appeared to be a hopeless condition.[14] My experience coincides with others in that there was a marvelous initial improvement which had persisted in Case 2 up to October, 1914. I am sorry to say that I have now lost track of the patient. The other patient began to fail in September. He slowly returned to his bedridden condition. He developed a transverse myelitis, the blood gradually deteriorated, and he died, Dec. 16, 1914, seven months after the splenectomy was performed.

SUMMARY

1. Primary pernicious anemia is probably due to a toxin which may be of bacterial, chemical or parasitic origin, and in some cases there is an increase of the unsaturated fatty acids. The spleen seems to exercise an influence favorable to the elaboration of these substances. These toxins appear also to cause a hyperemia of the splenic pulp because of changes in the blood vessels, which cause the blood to be poured directly into the pulp. The presence of the spleen seems to cause a diminution in the amount of the total fats and cholesterins of the blood which are antihemolytic. For these theoretical reasons, and because of the numerous cases on record in which a cure has been obtained in Banti's disease, which is closely related to pernicious anemia, splenectomy appears to be indicated in these and the closely associated anemias.

2. Removal of the spleen either in sickness or in health does not affect the patient injuriously. The operative mortality is not high even in very weak patients.

3. A rapid and striking remission of all symptoms appears, the change in the blood picture coming quickly and quite certainly. It is too soon for us to know whether or not any patients will be permanently cured, but it is quite probable that a large percentage will succumb to the disease within a few months after operation. Other methods of treatment should be combined with splenectomy, as more than one factor is doubtless at work in these cases. It will certainly prolong life, and in our incomplete knowledge of the etiology of this disease and the certainty that death will come under every other known method of treatment, I believe that these patients should be offered this additional chance of recovery. We must remember that some patients have been reported symptomatically well at the end of nine months, even though the blood was not entirely normal.

14. The early results of these operations I reported in Surgery, Gynecology and Obstetrics, November, 1914.

A National Fortune Within Reach.—The economic gain to be obtained from preventing postponable disease, measured in dollars, exceeds one and one-half billion annually.—Irving Fisher.

COMPLEMENT FIXATION IN PARASITIC SKIN DISEASES*

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PHILADELPHIA

In a fairly minute examination of the literature on fungus diseases of the skin, we have found no reference to complement-fixation tests having been made.

This study was undertaken by us in conjunction with investigations on the subject of vaccine treatment of ringworm and favus, to determine if various pathogenic fungi stimulate the production of amboceptors, as possibly shedding more light on the mechanism of the immune processes operative in these infections.

We have found that, in the majority of cases of ringworm of the scalp and favus, complement fixation occurs with fungus antigens, and while this test may have a limited practical value, owing to the ease with which the diagnosis of these diseases may be made from the clinical aspects, supplemented by a microscopic examination of diseased hairs, in the diagnosis of doubtful cases the complement-fixation test may prove of value.

Since ringworm of the scalp is to be regarded as a superficial invasion of the tissues of the scalp, the invasion of the fungus usually being limited to the shafts of hairs and the neighboring cells of hair follicles, it is of added interest that antibodies, which may be demonstrated in the serum of a person with this disease by the complement-fixation technic, may be produced by mere parasitic invasion without true infection, if the latter term is restricted to a process characterized by the passage of a microparasite through the barrier epithelium to the tissues beneath. It is conceivable that the fungus of ringworm may produce soluble products which, being absorbed, are capable of stimulating the local and general body cells to produce antibodies.

Favus, on the other hand, is usually characterized by a well-marked invasion of all layers of the epiderm down to and not infrequently involving the underlying corium, so that in most instances the disease may be regarded as an infection in the true sense of the term.

Of interest in this connection is the demonstration by Plato, Truffi, Black and Massini of local and general allergic reactions in persons suffering with ringworm by the application or injection of "trichophytin," an extract prepared of cultures of the fungus indicating the presence of a lytic antibody in the body fluids of persons suffering with this disease.

Further interest in this subject refers to the possible interrelationship of the fungi of ringworm and favus as studied by a complement-fixation technic. Bodin has described cases in which lesions on the skin, similar to those produced by the trichophyton of ringworm, have been caused by a parasite of the nature of an achorion. Fox, Blaxall and Sabouraud have

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observed circinate lesions on the skin, and lesions like kerion on the scalp, similar to those produced by the trichophyta, which, on cultivation, gave a culture like that of favus. Such cases demonstrate the fact that the line of demarcation between the fungi of ringworm and favus is not well defined.

MATERIALS

Serums.—The serums of twenty-seven cases of ringworm of the scalp were studied; also the serums of three cases of favus and one of tinea versicolor. Most of these patients were in the services of Dr. Jay F. Schamberg in the Polyclinic and Philadelphia General hospitals.

In addition, the serum of rabbits immunized with repeated intravenous injections of the antigens of ringworm and favus fungi were employed in the study of the biologic relationship of these fungi.

Cultures.—Pure cultures of the ringworm and favus fungi were obtained by culturing diseased hairs in "French proof agar." In obtaining these cultures, diseased hairs were placed in a shallow dish of absolute alcohol for fifteen or twenty minutes, washed in sterile salt solution and planted at once on a layer of the medium contained in 250 c.c. wide-mouthed Erlenmeyer flasks. These were placed at room temperature for twenty-four days, and the colony studied. Usually the fungi could be obtained in pure culture, fulfilling the cultural and microscopic appearances of *Microsporon audouini* and the achorion of Schönlein, respectively.

For cultivating the fungus of ringworm, a maltose medium was employed:

Maltose	38 gm.
Agar-agar	13 gm.
Peptone	5 gm.
Distilled water	1,000 c.c.

For the achorion of Schönlein (favus) the following medium of Sabouraud was successfully employed:

Pure anhydrous glucose	40 gm.
Peptone	20 gm.
Agar-agar	15 gm.
Distilled water	1,000 c.c.

While cultures were not made of all our cases of ringworm, all of those obtained were identified as the *Microsporon audouini.*

While many attempts have been made to cultivate *Microsporon furfur,* the fungus of tinea versicolor, these have generally failed. One of us has succeeded in cultivating a fungus from the scales of epithelium from a patient with this disease which we regard as a doubtful culture of the fungus. It was used in this study in our endeavor to throw more light on its identity.

Antigens.—These were prepared as follows:

Twenty-four day cultures were carefully removed from the flasks of medium with due caution against tearing away portions of the medium. As the cultures are firmly adherent, this is difficult and practically impossible to avoid entirely. An entire colony was placed in a sterile mortar, and 4.25 gm. of crystals of pure sodium chlorid added. By prolonged trituration the mycelia were broken up and the homogeneous material obtained. To this were added 500 c.c. of sterile distilled water. The resulting emulsion was then isotonic, and after being shaken mechanically with glass beads, was heated at 60 C. (140 F.) for an hour, preserved with 0.25 per cent. phenol (carbolic acid) and used as antigen. Large flakes from the emulsion will settle to the bottom of the flask, and these may be discarded after pipetting off the supernatant emulsion. Under no circumstances, however, may the emulsion be filtered through paper or porcelain, as these hold back the particles of mycelia, yielding a filtrate poor in antigenic properties. The ringworm antigen employed was prepared of three different cultures of *Microsporon audouini.*

TECHNIC

A. *Hemolytic System.*—The antisheep hemolytic system was used throughout in the same amounts as in our Wassermann technic, namely, one-half the amounts used in the original Wassermann method. Washed sheep's corpuscles were made up in a 2.5 per cent. suspension and used in doses of 1 c.c.; the fresh serums of guinea-pigs were diluted 1:20 and used as complement in dose of 1 c.c.; the hemolysin was titrated each day, and two hemolytic units used.

All serums were heated to 55 C. (131 F.) for one-half hour and used in amounts of from 0.001 to 0.2 c.c. Serum, antigen and complement were incubated for one hour at 37 C. (98.6 F.), and hemolysin and corpuscles added, incubated for an hour or longer, depending on the hemolysis of the controls, and the readings made.

By titration of the hemolysin with each complement and corpuscle suspension to be used that day, the hemolytic system is accurately adjusted. The controls were the same as we used in the routine Wassermann reaction; a serum control with each serum in maximum dosage; antigen, complement, hemolytic and corpuscle controls.

B. *Antigen Titrations.*—The anticomplementary dose of each antigen was determined by titration at frequent intervals, and one-quarter the anticomplementary dose used as our antigenic dose. With these amounts, false reactions were avoided. The antigens were always preserved in a refrigerator, and their titer remained remarkably constant over periods of several months.

Table 1 shows the results of one set of these titrations preliminary to the tests proper.

TABLE 1.—ANTICOMPLEMENTARY TITRATION OF ANTIGEN*

Dose of Antigen,† c.c.	Microsporon Audouini	Achorion Schönleinii	Microsporon Furfur (?)
0.2	H.	H.	H.
0.4	H.	H.	H.
0.6	H.	H.	H.
0.8	H.	S. I. H.	H.
1.0	H.	S. I. H.	H.
1.2	S. I. H.	M. I. H.	H.
1.5	M. I. H.	I. H.	H.
2.0	I. H.	I. H.	S. I. H.

* In this table, I. H. = Complete inhibition of hemolysis; M. I. H. = Marked inhibition of hemolysis; S. I. H. = Slight inhibition of hemolysis; H = Complete hemolysis.

† Antigenic dose used: Microsporon audouini, 0.3 c.c.; Achorion schönleinii, 0.25 c.c.; Microsporon furfur, 0.5 c.c.

I. COMPLEMENT FIXATION IN RINGWORM OF THE SCALP

With the serums of twenty-three cases of tinea tonsurans, positive reactions were obtained with the polyvalent antigen of *Microsporon audouini* in eighteen, or 78 per cent. Not all of these cases were cultured to determine whether the fungus was the *Microsporon audouini* or the *Trichophyta endothrix* or *ectothrix.*

Table 2 gives the results of complement-fixation tests with a constant dose of the antigen and increasing doses of serum. The age of the patient, and the duration and extent of the disease are included.

As shown in this table, we observed complement fixation with the majority of serums tested, especially with the 0.2 c.c. dose of serum. In general, the degree of complement fixation bears some relation to the severity and duration of the infection. One case of two weeks' duration, the earliest one among our cases,

TABLE 2.—COMPLEMENT FIXATION IN RINGWORM OF THE SCALP*

No.	Name	Age, Yrs.	Probable Duration, Mos.	Extent of the Disease	Reactions				Serum Control
					0.01 c.c. Serum	0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
1	F.	9	3	Moderate	+	++	++	++++	—
2	K.	2½†	1	Moderate	—	—	—	+	—
3	B.	7½†	6	Moderate	—	—	—	+	—
4	D.	4	3	Moderate	—	—	+	++	—
5	M. C.	3	3	Severe	—	—	—	—	—
6	D. C.	3	3	Moderate	—	—	—	—	—
7	R. C.	5	6	Severe	—	+	++	+++	—
8	W.	8	18	Very severe	+	++	+++	++++	—
9	J. M.	6	24	Moderate	—	—	+	++	—
10	C. L.	6	9	Moderate	—	+	++	+++	—
11	J. S.	..	11	Moderate	—	±	+	+++	—
12	C. S.	..	11	Moderate	—	—	+	+++	—
13	B. L.	11	18	Moderate	—	+	++	+++	—
14	S. S.	5	14	Moderate	—	—	—	+	—
15	W. H.	10	10	Moderate	—	—	—	+	—
16	C. R.	6	18	Severe	—	+	++	++++	—
17	E. G.	5	6	Severe	+	++	+++	++++	—
18	P.	2½	3	Moderate	—	—	—	+	—
19	G.	6	12	Moderate	—	—	—	—	—
20	C.	13	½	Moderate	—	—	—	+	—
21	F.	..	..	Moderate	+	+++	+++	++++	—
22	W.	..	..	Moderate	—	—	—	+	—
23	W. C.	..	..	Moderate	—	+	++	+++	—

* In this and the following tables, ++++ = total inhibition of hemolysis (strongly positive); +++ = 75 per cent. inhibition of hemolysis (strongly positive); ++ = 50 per cent. inhibition of hemolysis (moderately positive); + = 25 per cent. inhibition of hemolysis (weakly positive); ± = less than 25 per cent. inhibition of hemolysis (doubtfully positive); — = Complete hemolysis (negative).

† Months.

yielded slight fixation with the maximum dose of serum, but the duration of the disease appears to have less relation to the degree of fixation than the severity of the infection.

II. COMPLEMENT FIXATION IN FAVUS

Owing to the comparative rarity of this disease in this country, we have had the opportunity of studying but three cases. One of these was tested with the antigen of ringworm alone and the two recorded in Table 3 with the favus antigen.

TABLE 3.—COMPLEMENT FIXATION IN FAVUS

No.	Name	Age, Yrs.	Probable Duration, Yrs.	Extent	Reactions				Serum Controls, 0.2 c.c.
					0.01 c.c. Serum	0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
24	Z.	..	..	Moderate	—	+	++	+++	—
25	R.	10	7	Moderate	+	++	++++	++++	—

In both cases, positive reaction of well-marked degree were observed.

III. BIOLOGIC RELATIONSHIP OF MICROSPORON AUDOUINI AND ACHORION SCHÖNLEINII

The determination of the biologic relationship by complement-fixation tests of a microparasite to others of a group bearing similar morphologic or cultural characteristics depends on whether or not the organism produces a specific amboceptor and the antigen in the test possesses the distinct antigenic principle.

We have studied these relationships by two main methods: (*a*) by testing many serums of ringworm, favus and tinea versicolor infections with all three antigens, and (*b*) by interaction of the immune serums of ringworm and favus with the respective antigens.

TABLE 4.—INTERCOMPLEMENT-FIXATION REACTIONS WITH PATIENT'S SERUM

Case	Disease	Antigen	Reactions			Serum Control, 0.2 c.c.
			0.05 c.c. Serum	0.1 c.c. Serum	0.2 c.c. Serum	
26	Favus.....	Ringworm....	++	+++	+++	—
		Favus.....	+++	++++	++++	—
		T. versicolor?	—	—	±	—
25	Favus.....	Ringworm....	+	++	+++	—
		Favus.....	+	++++	++++	—
		T. versicolor?	—	++	+++	—
17	Ringworm....	Ringworm....	++	+++	++++	—
		Favus.....	+	++	+++	—
		T. versicolor?	—	—	—	—
10	Ringworm....	Ringworm....	+	++	+++	—
		Favus.....	±	+	++	—
		T. versicolor?	—	+	+	—
11	Ringworm....	Ringworm....	±	+	+++	—
		Favus.....	±	+	+++	—
		F. versicolor?	—	—	—	—
13	Ringworm....	Ringworm....	+	++	+++	—
		Favus.....	±	++	+++	—
		F. versicolor?	—	+	++	—
27	T. versicolor.	Ringworm....	—	—	—	—
		Favus.....	—	—	—	—
		F. versicolor?	—	—	—	—

Table 5 shows the results of testing a number of serums in the maximum dosage of 0.2 c.c. with each of three antigens.

TABLE 5.—INTERCOMPLEMENT-FIXATION REACTIONS WITH PATIENTS' SERUMS (Continued)

Case No.	Disease	Dose of Serum, c.c.	Antigens			Serum Control 0.2 c.c.
			Ringworm	Favus	T. versicolor?	
16	Ringworm	0.2	++++	++++	—	—
7	Ringworm	0.2	++++	++++	++	—
19	Ringworm	0.2	—	—	—	—
4	Ringworm	0.2	++	+	±	—
20	Ringworm	0.2	+	+	±	—
3	Ringworm	0.2	+	±	—	—
2	Ringworm	0.2	±	—	—	—
1	Ringworm	0.2	++++	++++	+++	—

The results may be summarized as follows:

1. With the serums of patients suffering with ringworm, complement fixation was best marked with ringworm antigen; usually to a lesser degree with favus antigen and not at all or but a slight degree with the antigen of a doubtful culture of tinea versicolor.

2. The serums of persons suffering with favus fixed complement best with the antigen of the favus fungus, to a lesser degree with the antigen of ringworm, and in one case somewhat strongly with the antigen of doubtful culture of tinea versicolor.

3. The serum of the one case of tinea versicolor failed to fix complement with any of the three antigens.

4. These reactions tend to show that a close biologic relationship exists between *Microsporon audouini* and *Achorion schönleinii*. For the purposes of differential diagnosis, therefore, it is necessary to use the serum in ascending doses with a constant dose of each antigen (as one-quarter the anticomplementary unit). Specificity is found only with the smaller doses which show fixation of complement with the respective antigen, whereas with the larger doses of serum, complement is absorbed with both antigens in a group reaction.

This relationship is further shown in the results of titrating each immune serum (prepared by immunizing rabbits) with all three antigens (Tables 6 and 7).

Each immune serum fixed complement best with its own antigen, which was especially observed with the smaller doses of serum. With the larger doses this specificity was lost and the results constituted an example of a "group reaction" as seen in similar studies with the group of streptococci, diphtheria bacilli, typhoid colon group of bacilli and the gonococcus group. Granting that our antigens were of true cultures of *Microsporon audouini* and the achorion of Schönlein, respectively, the results indicate that these fungi are related and members of the same group.

TABLE 6.—COMPLEMENT-FIXATION REACTIONS WITH RINGWORM-IMMUNE SERUM

Immune Serum	Amount of Serum, c.c.	Antigens Used in ¼ Anticomplementary Dose		
		Ringworm	Favus	T. versicolor?
Ringworm	0.001	—	—	—
Ringworm	0.005	+	—	—
Ringworm	0.01	++	—	—
Ringworm	0.05	++++	+	—
Ringworm	0.1	++++	+++	+
Ringworm	0.2	++++	++++	++
Ringworm	0.2*	—	—	—

* Control.

TABLE 7.—COMPLEMENT-FIXATION REACTIONS WITH FAVUS-IMMUNE SERUM

Immune Serum	Amount of Serum, c.c.	Antigens Used in ¼ Anticomplementary Dose		
		Ringworm	Favus	T. versicolor?
Favus	0.001	—	—	—
Favus	0.005	—	+	—
Favus	0.01	—	++	—
Favus	0.05	+	++++	—
Favus	0.1	++	++++	—
Favus	0.2	+++	++++	±
Favus	0.2*	—	—	—

* Control.

IV. SPECIFICITY OF COMPLEMENT FIXATION IN RINGWORM AND FAVUS

Most interest in this connection refers to the possibility of the serums of syphilitic persons reacting with the fungus antigens. We have tested a number of the serums from persons with various diseases, including syphilis, and have found that they have in no instance reacted positively with the fungus antigens.

Each serum was also tested by the Wassermann reaction, three different extracts, as follows, being used: a cholesterinized extract of human heart, an alcoholic extract of syphilitic liver, and an extract of acetone-insoluble lipoids of beef heart.

The results are given in Table 8.

These results may be summarized as follows:

1. Eleven serums yielding positive Wassermann reactions reacted negatively in each instance with the antigens of the three fungi. These results indicate quite clearly that the lipophilic reagin in the blood serum of syphilitics responsible for the Wassermann reaction will not absorb complement with the fungi antigens.

2. With the serums of persons suffering with various other diseases, including four skin diseases, namely, scabies, impetigo contagiosa, eczema and acne vulgaris, the reactions with the antigens of fungi were entirely negative.

3. These results indicate that while the reactions are not highly specific with the two fungus diseases, namely, ringworm of the scalp and favus, owing probably to a biologic relationship of these fungi, complement fixation does not occur with these antigens of fungi and the serums of various other diseases.

SUMMARY

1. With a polyvalent antigen of *Microsporon audouini*, complement fixation was found to occur in 78 per cent. of persons suffering with ringworm of the scalp.

2. The serums of two cases of favus studied yielded positive reactions with an antigen of the achorion of Schönlein.

TABLE 8.—COMPLEMENT-FIXATION TESTS WITH FUNGUS ANTIGENS AND THE SERUMS OF PERSONS WITH VARIOUS DISEASES

No.	Diagnosis	Dose of Serum, c.c.	Wassermann Reaction			Fungus Antigens			
			Cholest. Alc. Extr. Human Heart	Alc. Extr. Syph. Liver	Acet. Insol. Lipoids	Ringworm	Favus	T. versicolor	Serum Control
1	Tertiary syphilis	0.2	++	+	+	—	—	—	—
2	Osteoperiostitis	0.2	—	—	—	—	—	—	—
3	Optic atrophy	0.2	++	±	±	—	—	—	—
4	Epilepsy	0.2	—	—	—	—	—	—	—
5	Eczema	0.2	—	—	—	—	—	—	—
6	Secondary syphilis	0.2	++++	++++	++++	—	—	—	—
7	Chronic laryngitis	0.2	—	—	—	—	—	—	—
8	Impetigo contagiosa	0.2	—	—	—	—	—	—	—
9	Syphilitic orchitis	0.2	++++	++++	++++	—	—	—	—
10	Secondary syphilis	0.2	++++	++++	++++	—	—	—	—
11	Epilepsy	0.2	—	—	—	—	—	—	—
12	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
13	Syphilitic osteitis	0.2	++++	++++	++++	—	—	—	—
14	Acute tonsillitis	0.2	—	—	—	—	—	—	—
15	Furunculosis	0.2	—	—	—	—	—	—	—
16	Acute conjunctivitis	0.2	—	—	—	—	—	—	—
17	Diabetes mellitus	0.2	—	—	—	—	—	—	—
18	Pneumonia	0.2	—	—	—	—	—	—	—
19	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
20	Pneumonia	0.2	—	—	—	—	—	—	—
21	Tertiary syphilis	0.2	++++	++++	++++	—	—	—	—
22	Chronic rheumatism	0.2	—	—	—	—	—	—	—
23	Scabies	0.2	—	—	—	—	—	—	—
24	Asthma	0.2	—	—	—	—	—	—	—
25	Acute rhinitis	0.2	—	—	—	—	—	—	—
26	Sarcoma kidney	0.2	—	—	—	—	—	—	—
27	Tabes dorsalis	0.2	++++	+	++	—	—	—	—
28	Chronic nephritis	0.2	++	—	—	—	—	—	—
29	Acne vulgaris	0.2	—	—	—	—	—	—	—

3. The degree of reaction in both ringworm and favus was observed to depend in general, first, on the severity of the infection, and second, on the duration of the infection.

4. A culture of the scales of tinea versicolor, regarded as a doubtful culture of *Microsporon furfur*, reacted weakly or irregularly with the serums of ringworm and favus patients, and negatively with the serum of a case of tinea versicolor.

5. The ringworm and favus antibodies (amboceptors) fixed complement best with their respective antigens, but with relatively large doses of serum this specificity was not observed, owing probably to a biologic relationship of *Microsporon audouini* and *Achorion schönleinii*.

6. The antigens of the fungi did not fix complement with the serums of syphilitics and that of persons suffering from scabies, impetigo contagiosa, eczema, acne vulgaris and other diseases.

SOME CLINICAL FEATURES OF THE WASSERMANN REACTION

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I. THE WASSERMANN DIAGNOSIS

The Wassermann reaction is the most satisfactory laboratory test for the presence of syphilis. Indeed, some serologists believe this reaction an absolutely accurate test for syphilis. So much one may infer from recent testimony of a competent serologist to the effect that a positive Wassermann reaction, unsupported by clinical evidence, is proof of the existence of syphilis; while a negative Wassermann reaction (in the absence of other evidence) is proof of the absence of syphilis. Such an opinion is of course an extreme one. Most of us agree that the Wassermann reaction when negative gives no information as to the presence or absence of syphilis. Yet many laboratory workers and many clinicians regard the positive Wassermann reaction, unsupported by clinical evidence, as adequate proof of syphilis.

To this opinion I must take exception. I do not feel justified in making the diagnosis of syphilis on the Wassermann reaction alone. To be sure, the positive Wassermann reaction throws the burden of proof on the clinician, and requires that he prove the patient free from syphilis. And most unfortunately, the clinician has no means of proving any one free from syphilis; so that the best he can do in deciding on the merits of any individual case is to leave the question open without asserting that the patient is any more syphilitic for having a positive Wassermann reaction than if he had a negative reaction. Such a conclusion, or lack of conclusion, is obviously a most unsatisfactory one for all concerned. Yet the following facts appear to justify it:

In the first place, the Wassermann reaction is performed in many different ways. All of them give a majority, even a large majority, of accurate results. All of them give a certain small percentage of positives with patients who have no history and present no symptoms of syphilis. But no two of them agree precisely in their results. Some 5 or 10 per cent. of persons apparently free from syphilis give positive Wassermann reactions; but the precise composition of this 5 or 10 per cent. varies with the technic employed.

In order to control possible errors, certain laboratory workers employ two or three different methods (the method varying chiefly in the antigen employed). This, while it increases the accuracy of conclusion, concedes its essential inaccuracy.

In the second place, even in the laboratory itself, the Wassermann reaction with the patient's blood is by no means the only test of syphilis; nor is it always the final test. Its findings vary inexplicably in certain cases from those of the luetin test, as well as from the lymphocyte count, the globulin test and the Wassermann reaction of the spinal fluid. The reaction is positive in practically 100 per cent. of syphilitics at about the tenth or twelfth week of untreated syphilis; but earlier than this, as well as later than this, it is not always positive.

In the third place, the reaction is known to be positive in certain diseases other than syphilis. The striking disagreement among published reports as to the influence of such conditions as tuberculosis, carcinoma and scarlatina on the Wassermann reaction is perhaps the best commentary on the uncertainty of the reaction as a sufficient criterion of the existence of syphilis. We know that with certain technics the percentage of positives in cases of carcinoma and tuberculosis is higher than with others. Indeed, we know that whatever the technic employed the use of alcohol by the patient may render his blood negative; while the presence of acidosis in a person not suffering from syphilis makes his blood positive. This last fact has been demonstrated by Dr. Richards, and is beautifully illustrated by a patient with carcinoma on whom the Wassermann reactions were done by Drs. Coca and L'Esperance. When first examined the blood was found negative; a condition of acidosis was then artificially induced and the blood became positive; finally, when the acidosis disappeared, the blood was again negative. Surely in the presence of these known causes of variation, we must confess that there may be other causes of variation as yet undiscovered. Hence the Wassermann reaction, accurate as it is in the great majority of cases, is by no means in practice, any more than it is in theory, an infallible specific reaction for syphilis.

Only recently, in conjunction with another syphilologist, I examined forty inmates of a tuberculosis hospital on whom the Wassermann reaction had been reported positive. Thirty of these showed certain or probable clinical evidence of the disease; ten of them failed to show any such evidence. The blood of these ten was once again examined. The laboratory which had examined them before (with alcoholic antigen) returned them all once again as positive (three and four plus). Another laboratory employing two different antigens obtained, with a cholesterinized antigen, four positives and six negatives; with a lipoid antigen, one positive, one doubtful and eight negatives.

Under these circumstances I should be unwilling to go on the witness stand and swear that even this last survivor of all the tests has syphilis. Moreover, it is interesting to note that the worker who obtained the ten positives assures me that all of those patients are certain syphilitics; while the man who got the one positive agrees with me that he would not be willing to condemn that one. May I, as a clinician, suggest that the latter attitude seems to me the reasonable one?

The difference in point of view is not due to failure on the part of the laboratory, but to failure on the part of the clinician. The laboratory worker in making up his statistics depends far more on the clinician than the clinician in making his diagnoses depends on the laboratory.

Since 1910, I have depended chiefly on the technic of Drs. Coca and L'Esperance for the Wassermann reaction. During this time they have compared their technic with several others, while the laboratory diagnosis has been controlled by the most careful clinical examination, supported, when necessary, by other laboratory tests.[1] The discrepancy between our conclusions and those of others who have discussed this subject lies, I repeat, rather in the clinic than in the laboratory. The average laboratory worker, human though he be, is far more precise, far more prudent in his conclusions, than the average clinician. If our differences are to be settled, this must be accompanied by the collaboration of skilled clinicians and skilled laboratory workers, studying the comparative accuracy of the various modifications of the Wassermann reaction on a large series of normal individuals as well as syphilitics.

II. THE WASSERMANN REACTION AND PROGNOSIS

The first question asked by every syphilitic is, Can I ever get well? The second, May I ever marry? Since the second question can be answered more definitely than the first, let us give it precedence.

Under the old dispensation, before there was any Wassermann reaction, the syphilitic might safely be told to marry after five years of his disease, during the first three of which he had taken treatment, and during the last two of which he had taken no treatment, and shown no lesions. (Some clinicians insisted on a longer probation, some permitted a shorter one, but we have always adhered to the five years, and it seems a fair average.) It was recognized that this clinical evidence gave no guarantee against relapse in the person of the patient himself; but the matrimonial guarantee was believed sufficient. Indeed, neither I, nor my father before me, have ever known it to fail, though a few exceptions have been alleged by such extremists as Edmond Fournier. But the Wassermann reaction shows no concordance whatever with this opinion. Though it is not positive quite so often after the first five years of the disease as during them, it is far more often viciously and persistently positive in the later years, and patients are often refused permission to marry on account of a positive reaction.

On the ground of infectiousness this is no more warrantable now that we know the Wassermann reaction is positive or negative, than it was when we had no such knowledge. We may believe that a persistent Wassermann proves the presence of the live treponemes in the patient's body; but we also believe that a negative Wassermann is no evidence whatsoever that the treponemes have departed therefrom. Yet clinical experience has long since shown that the lapse of time cures the infectiousness of syphilis (as, indeed, it controls syphilis itself) better than any treatment. Salvarsan and mercury control the outbreaks of the disease. Time and the patient's own reaction abate its tendency to infectiousness and to relapse.

1. This report will soon be published.

Although the persistence of a positive reaction does not prove syphilis infectious, it is disquieting as a suggestion that the patient is likely to have further relapses, and that these are likely to be in the arterial or the cerebrospinal system. My own experience is not sufficient to justify any absolute conclusions in this matter. I recognize that a fixed positive reaction is singularly common in paresis. Yet in a few cases I have seen a Wassermann reaction remain fixed for many years in the face of the most violent onslaught with injections of salvarsan and mercury, the patient all the while persisting in smiling health despite his disease and despite his treatment.

In two instances I have seen a positive Wassermann become spontaneously negative, although vigorous treatment in the preceding years had failed to make it so. That these isolated cases are not necessarily faulty observations on my part is suggested by the well-known fact that occasionally a patient, on whom the diagnosis of syphilis is first made many years after its inception, has a negative Wassermann reaction, although the reaction was doubtless positive at one time, and although no treatment had been administered. In such an instance the reaction must have become spontaneously negative.

The influence of treatment, notably by salvarsan, on the lesions of syphilis and on the Wassermann reaction usually shows a definite sequence. The somatic lesions yield first, the Wassermann reaction, if it has been positive, either remains positive or becomes negative after the lesions disappear. And further, if a relapse of somatic lesions is about to occur, this is likely to be preceded by the reappearance of a positive Wassermann reaction. This train of events, though by no means inevitable, is sufficiently frequent to be depended on, except in those patients whose Wassermann reaction is negative even when their somatic lesions are active. (These usually, though not always, have a brief positive reaction, provoked within the first twenty-four or forty-eight hours following the injection of salvarsan.)

In the first year of the disease, when the active somatic lesions are almost always accompanied by a positive Wassermann reaction, the effect of salvarsan on the Wassermann reaction is often more prolonged, as well as more immediate, than the effect on the somatic lesions. I have records of no less than seven cases, in the first year of the disease, that showed relapse of somatic lesions, while the Wassermann, which previously had been positive, remained negative. Hence a persistence of the negative Wassermann reaction after salvarsan administration, in the first year of the disease, is no guarantee whatever against relapse, and no justification for discontinuing treatment.

Dependence on the negative Wassermann reaction as evidence of cure has led many observers to report erroneously a reinfection of syphilis shortly after the administration of salvarsan. The usual history of such a case is that salvarsan is administered during the primary stage of the disease, or at the appearance of the secondary lesions. All lesions disappear, the Wassermann reaction becomes negative, a varying number of months elapse, during which the patient is exposed to sundry possibilities of reinfection. Then a new chancre appears, the Wassermann reaction remaining negative. In due time the glands in the groin enlarge, the secondary lesions follow and the Wassermann reaction becomes positive, once

again to be controlled by salvarsan. Clinicians reporting these cases do not envisage the possibility that the disease may have been almost, but not quite aborted, and that the apparent relapse is but a reinfection from the treponemes persisting in the chancre that appeared healed. Either interpretation is tenable. But I have twice seen patients who had received salvarsan while still in the primary stage develop delayed macular eruptions after several months had gone by. Once I have seen the chancre itself return after a few months. In one instance, chancre, glands and macular eruption all returned with due precedence some four months after the initial lesion had apparently been destroyed by salvarsan injection. This patient had not been guaranteed cured, and I am moved to believe that he told the truth in denying intervening sexual contact. (Similar observations, be it said, have been recorded by Ravaut.[2])

Hence the best we can do for the present is to reserve judgment concerning all alleged reinfections occurring within a few months of an alleged "abortion" of syphilis by salvarsan.

CONCLUSIONS

1. A negative Wassermann is not sufficient evidence of the cure or absence of syphilis.

2. A positive Wassermann, unsupported by clinical evidence, is not sufficient evidence of the presence of syphilis.

3. A positive Wassermann does not prohibit matrimony.

4. A fixed, positive Wassermann in the later years of the disease does not inevitably point to the prospect of grave lesions.

5. A negative Wassermann after salvarsan, in the first year of the disease, does not mean that the patient is cured, or that lesions will not reappear before the reaction again becomes positive.

6. The return of chancre, glands, eruption and positive Wassermann reaction, a few months after control of the disease by salvarsan in its first few weeks, does not prove reinfection.

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OROYA FEVER

SECOND REPORT *

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In a previous article,[1] we reported on our earlier investigations relating to verruga peruviana and Oroya fever. In the present communication we desire to discuss particularly the distribution and seasonal prevalence and the clinical manifestations of Oroya fever.

DISTRIBUTION AND SEASONAL PREVALENCE

Our investigations relating to Oroya fever and verruga peruviana were made in Lima, in the large hospitals in that city, and in a number of the mountain towns in the interior of Peru, particularly San Mateo, Chosica, Santa Eulalia, San Bartolomé, Surco, Cocochacra and Matucana. Cases of verruga peruviana were found in or in the vicinity of all of these towns, and in these localities cases of malaria were also common. Cases of Oroya fever were studied in which the disease had been contracted in or in the vicinity of San Bartolomé and Matucana.

At the present time our knowledge of the geographical distribution of Oroya fever probably is very incomplete. The disease undoubtedly occurs in many of the deep cleft, narrow valleys situated on the western slope of the Peruvian Andes at altitudes of from 2,500 to 8,000 feet. In these districts, as has been intimated, malaria and verruga peruviana are also very common diseases. Owing to the fact that Oroya fever, or Carrion's disease as it is frequently termed in these localities, evidently has so often been confused with other diseases encountered there, and particularly with verruga peruviana, malaria and paratyphoid fever, our knowledge of its distribution even in these regions must be far from accurate. Moreover, it would not be surprising if cases of Oroya fever were subsequently found to occur in other tropical countries. Since the parasite of the disease is difficult to detect, and its parasitic nature hitherto has not been definitely established, it would not seem strange if the disease has escaped observation in other localities where it exists. Like malaria, the disease appears undoubtedly to have a seasonal prevalence, and this appears to be more marked than in the case of verruga peruviana. Oroya fever seems to be much more prevalent in Peru from January to April, and particularly toward the close of the warm, rainy season. In 1913 more cases were observed, according to the hospital reports in Lima, in January, February and March. In April and May there were no admissions with the diagnosis of this disease at the Dos de Mayo Hospital. Our investigations in Peru were largely carried out during the months of June, July and August, which is the season in which neither Oroya fever nor malaria are particularly prevalent there. However, during these months verruga cases were certainly not uncommon, according to our observations.

Odriozola,[2] in that portion of his estimable monograph which relates to the *fièvre grave de Carrion*, in discussing the localities in which this disease is encountered, describes conditions which seem to suggest that the distribution or rather the prevalence of Oroya fever and of verruga peruviana does not always coincide in regard to time and place, any more than does the distribution of verruga peruviana and malaria.

CLINICAL FEATURES

Clinically the disease is particularly characterized by a fever which may be irregular in its course, and in severe infections by a rapid and pernicious form of anemia which results in extreme prostration and frequently in death. In severe infections the patient may not live longer than three or four weeks from the onset of the symptoms.

Descriptions in the literature regarding the clinical manifestations of this disease are often or, indeed, usually confusing, since almost invariably in these descriptions Oroya fever and verruga peruviana are

2. Ravaut: Presse méd., Sept. 13, 1913.

* From the Harvard School of Tropical Medicine.

1. Strong, R. P.; Tyzzer, E. E.; Brues, C. T.; Sellards, A. W., and Gastiaburú, J. C.: Verruga Peruviana, Oroyo Fever and Uta, THE JOURNAL A. M. A., Nov. 8, 1913, p. 1713.

2. Odriozola: La Maladie de Carrion ou la verruga péruvienne, Paris, 1898, Carré and Naud, editors.

described as merely different stages of the same disease. In the cases of Oroya fever which have terminated fatally, the patients are said to have died in the first stage of the disease, verruga, before the eruption has appeared on the skin. Those cases of true verruga in which an eruption develops are said to be in the eruptive stage of the disease.

Concomitant infections with Oroya fever and verruga peruviana may occur, just as concomitant infections with verruga and malaria commonly occur, but the diseases in both instances are independent infections. The occurrence of malarial attacks in individuals during the stage of incubation of verruga peruviana has often led to the wrong diagnosis of the febrile or Oroya fever stage of verruga peruviana, and hence to a confusion in relation to the symptomatology and other clinical features of Oroya fever as described in medical literature. Also it seems evident from the published accounts that cases of infection with paratyphoid fever which have developed verruga peruviana have been confounded with or diagnosed under the name of Oroya fever or Carrion's disease. Demonstration of this fact is given by the investigations of several observers. Thus Barton,[3] Biffi and Carbajal,[4] Tamayo and Gastiaburú[5] have isolated paratyphoid bacilli from the blood of supposed cases of Oroya fever or cases of Carrion's disease. Obviously it is possible that some cases of Oroya fever are complicated by a paratyphoid infection. It seems obvious that it is largely on account of these facts that the published clinical descriptions of uncomplicated cases of Oroya fever are meager.

From the study of the literature relating apparently to uncomplicated cases of this disease, and from our own observations on other such cases, the following conclusions have been reached in regard to its clinical features.

It is stated that the incubation period is about twenty days, and our observations are not contrary to this idea. In our opinion, however, this statement has not been conclusively demonstrated, and we were unable definitely to verify it owing to the fact that we did not have an opportunity to observe a sufficiently large number of cases from which to draw definite conclusions. The disease is usually introduced by malaise, pains and weakness in the limbs, and indisposition. Following these symptoms, slight rigors and fever appear. The febrile symptoms and rigors usually increase in severity as the disease develops. The fever is often very irregular, being usually remittent, but sometimes intermittent. The temperature fluctuates between 38 and 38.5 C. (100.4 and 101.3 F.), rarely rising to 40 C. (104.F). The fever is accompanied by a rapid, pernicious anemia, which may be complicated or not by hemorrhage, vertigo or syncope. The number of red cells may be reduced to 1,000,000 per cubic millimeter or less. The skin becomes pale, the mucous membranes assume a waxy appearance, and murmurs are heard over the heart and cervical vessels. Edema of the legs and about the joints may occur. The tongue is coated, and the bowels frequently constipated in the early stages. Later, diarrhea frequently develops. The urine is scanty, and the specific gravity high. Albumin is occasionally present. The prostration increases as the disease progresses, and restlessness, insomnia and delirium may develop. In uncomplicated cases there is no eruption on the skin. It has been assumed by some writers that an eruption in these cases appears in the internal organs. In such an opinion we do not concur, and the results obtained in post-mortem examinations do not coincide with this view. In general, it may be stated that the cases of Oroya fever are grave ones and terminate frequently in death. Mild cases which terminate favorably do, however, occur, and we had an opportunity of studying infections of this nature. In some instances the temperature sinks to normal or subnormal, and death occurs from excessive exhaustion. Death may occur within a few weeks of the onset of symptoms. Some observers report that death may occur as early as ten days from the onset of the attack, but we have not observed instances of such short duration. In the patients who recover, improvement in the severe symptoms of the disease usually begins within twenty-five or thirty days, and convalescence follows. The mortality probably equals usually from 30 to 40 per cent. Some observers, however, give a mortality of 75 per cent., and Rocha-Lima states that it may reach 98 per cent. However, Rocha-Lima's statement is not based on personal observations. The spleen is frequently enlarged, but according to the observations of others is not always palpable. The liver may be moderately swollen, and the lymphatic glands are almost always more or less enlarged. It is stated that pain in the joints is a common symptom, but we are unable to verify this statement in relation to uncomplicated cases of the disease. Pain in the long bones is sometimes complained of.

BLOOD

The most striking and characteristic feature in Oroya fever is the changes found in the blood. This has led to the disease being sometimes termed in Peru *anaemia perniciosa de los quebradas*. The development of the anemia in severe infections may be very rapid and pernicious. In one of the cases studied by us, which was described in a previous report, the red blood corpuscles numbered less than 1,000,000 per cubic millimeter, and the entire course of the disease, terminating in death, was but twenty-eight days. Monge[6] reports cases in which the number of red cells fell to 500,000 per cubic millimeter in a very short period of time, and death followed in a few days. Nucleated red cells appear early in the peripheral circulation, and rapidly increase in number. Normoblasts are most numerous, but megaloblasts are frequently seen. Polychromatophilia and poikilocytosis are particularly marked in severe infections in both erythrocytes and erythroblasts. Many granular cells are visible. Great variation in the size of the erythrocytes also occurs. Monge, who has apparently studied uncomplicated cases of Oroya fever, reports in severe ones 2,000 normoblasts and 200 megaloblasts per cubic millimeter. In one case the normoblasts numbered 15,300, and the megaloblasts 3,420. Leukocytosis is almost always present. A count of 20,000 is common. Differential counts often show nothing particularly striking in the proportions of the different varieties. Bassett-Smith[7] found in studying the blood from seven

3. Barton: Crón. méd., Lima, 1901, xviii, No. 301, p. 193; No. 302, p. 210; 1902, xix, No. 334, p. 348.
4. Biffi and Carbajal: Crón. méd., Lima, 1904, xxi, No. 379, p. 285; 1903, xx, No. 346, p. 149. Biffi: Arch. f. Schiffs- u. Tropen-Hyg., 1908, xii, 1.
5. Tamayo and Gastiaburú: Gac. d. l. Hosp., 1905, ii, No. 46, p. 516. Crón. méd., Lima, 1905, xxii, No. 406, p. 335; No. 407, p. 349; 1906, xxiii, No. 429, p. 327; 1907, xxiv, No. 453, p. 321. Gac. d. l. Hosp., 1906, iii, No. 62, p. 107.

6. Monge: Jour. London School Trop. Med., 1912, i, Part 3, p. 239.
7. Bassett-Smith: Brit. Med. Jour., 1909, ii, 783; Lancet, London, 1909, p. 461; Tr. Soc. Trop. Med. and Hyg., London, 1914, vii, 158.

cases that the polymorphonuclears numbered from 65 to 70 per cent., the large mononuclears from 7 to 10 per cent., the small mononuclears from 17 to 21 per cent., transitional forms from 1 to 3 per cent., eosinophils from 2 to 4.5 per cent. Biffi[8] found the polymorphonuclears 44 per cent., eosinophils 10 per cent., large mononuclears 16 per cent., lymphocytes 30 per cent. In the severest case which we encountered, the polymorphonuclear leukocytes numbered 56 per cent., the large mononuclears 16 per cent., transitional forms 0.1 per cent., small mononuclears 12 per cent., eosinophils 0 per cent., normoblasts 9 per cent., myelocytes 2.5 per cent. Myelocytes are found present in the severe cases ranging usually from 0.5 to 2 per cent. The hemoglobin in severe infections may amount to but 15 per cent. In less severe cases of infection it may be from 40 to 50 per cent. In our first publication we gave a description of the parasite as it occurred in the red blood-cells. Other forms of it have subsequently been found in the endothelial cells. To this parasite, which we believe causes the disease, we have given the name of *Bartonella bacilliformis*.[9] In another report which will shortly appear, this organism is fully described, and the description of its life cycle in the endothelial cells considered. In severe cases, the parasites which give rise to the disease are present in the red cells in great numbers. In mild cases, however, the number of infected corpuscles is small and a long search is often necessary to disclose the parasites.

CLINICAL EXPERIENCE WITH LIQUID PARAFFIN (LIQUID PETROLATUM)

A COMPARATIVE INVESTIGATION MADE UNDER THE AUSPICES OF THE COUNCIL ON PHARMACY AND CHEMISTRY *

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During the past three or four years, "mineral oil" has come into extensive use in the treatment of constipation. Preparations of the Russian and the American oil, both heavy and light, have appeared on the market, but there have been no satisfactory data on which to base a selection of oil for use. Therefore, in order to obtain reliable clinical information concerning the relative efficiency of the different oils, the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association submitted samples of the oils to various clinicians for testing. The following is a synopsis of the investigation, which I have prepared at the request of the committee.

The collaborators were advised that specimens of the best obtainable light Russian liquid petrolatum, heavy Russian liquid petrolatum and an American brand of liquid petrolatum would be sent out, but that, to avoid bias, these specimens would be distinguished only by numbers or letters. The oils sent out were (1) a light "Russian" liquid petrolatum having a specific gravity of 0.860 at 20 C., (2) a heavy "Russian" liquid petrolatum having a specific gravity of 0.885 at 20 C., and (3) an "American" liquid petrolatum having a specific gravity of 0.857 at 20 C. and being markedly fluorescent. The collaborators were advised that the reports should furnish information as to size and frequency of dose, the agreeableness to the taste, the effect on the stomach, the number and character of the stools, the degree of admixture of the oil with the other ingredients of the stool, the degree of leakage of oil about the anus, and the need of other cathartic measures.

Reports have been received from Drs. L. F. Barker, W. A. Bastedo, J. B. Champion, Henry A. Christian with C. K. Drinker and F. A. Hatch, Alfred Stengel and R. L. Wilbur.

CONCLUSIONS

The conclusions to be drawn from the clinical reports are:

Dosage.—Half an ounce to 3 ounces a day. In the same patient, the same amount of each of the oils was required.

Frequency of Dose.—The same amount daily seemed as efficient when given in one dose as when given in divided doses two or three times a day.

Agreeableness to the Taste.—There is a difference of opinion in this regard. Two reports favored the heavy Russian oil. One report favored the light Russian petrolatum. But the taste of any of the samples was so slight as to be a negligible quantity after the patient had taken the remedy for two or three days.

Stomach Effects.—In about 20 per cent. of the patients, the oil produced a slight degree of nausea or tended to repeat. This is most likely in patients who have gastric stagnation with retarded emptying of the stomach. All the oils acted the same in this regard. Vomiting was reported in two cases.

Number of Stools.—To produce one or two copious stools a day the dose required varied considerably, but there was no difference noted on account of difference in the specific gravity or character of the oils.

Character of Stools.—The stools were soft, usually formed, sometimes mushy, obviously greasy. They had a peculiar odor described as sour. Their consistency varied with the dose, but was the same for the different kinds of oil.

Admixture of Oil with Other Ingredients of Stool.—Generally well mixed, but from time to time a patient would have a stool of free oil. This occurred with all varieties of oil. (It necessitated reduction of the dose, and if then the bowels were not active enough, the administration in addition of cascara, aloin, etc.)

Leakage About the Anus.—A disagreeable feature complained of by many is that when they take enough of the oil to move the bowels, there is sufficient leakage from the anus to keep the neighboring skin continually in a greasy condition, and sometimes to stain the clothes. That there is any difference in this regard between the oils has not been determined.

In the reports, one clinician noted no differences that were not negligible. Another was slightly in favor of No. 2 (heavy Russian) as regards taste. A third reporter did not make comparative tests. A fourth is

8. Biffi: Bol. Acad. de med. de Lima, 1903, iii, 2.

9. Dr. P. W. Bassett-Smith has since our first publication in THE JOURNAL kindly called the attention of one of us to the fact that the name Bartonia first suggested by us, has been used as a generic one in botany to include two species of Gentianacea. This use would not necessarily preclude its employment in zoology, although a duplication of names in botany and zoology is certainly highly undesirable. On investigation, however, we have found that the use of Bartonia as a generic name has been applied by Cossmann (Paris, 1901, p. 293) to an eocene mollusk, *Bartonia canaliculatum;* hence we have changed the generic name to Bartonella, retaining the specific one, bacilliformis (*Bartonella bacilliformis*).

* This investigation was made under the auspices of the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association. At the request of the committee, Dr. W. A. Bastedo has prepared this critical review of the reports made by those who collaborated in this investigation.

slightly in favor of "B" (heavy Russian) as regards taste and general suitability. All of the findings of this investigation are based on hospital cases. A fifth reporter favored No. 1 (light Russian petrolatum). He considered it the most prompt in its effect, the most uniform in results, and the most prone to give a satisfactory admixture of the oil with the other materials. The difference, however, from the other oils was not marked. Another reporter noted no special differences.

SUMMARY

The results of this clinical investigation appear to warrant the conclusion that so far as therapeutic results are concerned the differences in the action of the three varieties of liquid petrolatum, namely, light Russian liquid petrolatum, heavy Russian liquid petrolatum and American liquid petrolatum, are too slight to be of importance. Hence the choice between the lighter and the heavier oils, and between the Russian and the American is an open one, to be determined not by therapeutic differences, but by palatability, dependent on the degree to which the refinement of the oil is carried out. The U. S. Pharmacopeia, the revision of which is now nearing completion, no doubt will furnish standards which will insure a suitable product. From the findings of the foregoing report it would appear that a satisfactory standard might permit the use of either Russian or American oil, if suitably refined so as to be as nearly as possible devoid of odor and taste.

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A STUDY OF THE COMMERCIAL PREPARATIONS OF BACILLUS BULGARICUS

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During the past few years many physicians have advocated the administration of living cultures of *Bacillus bulgaricus*, in order to change beneficially the intestinal flora. It is asserted that the large amount of acid produced by this organism from the fermentation of the various sugars is detrimental to the growth of other intestinal organisms, especially of the putrefactive group. This organism was at first given in the form of a fermented milk, but is now dispensed chiefly in the form of pure cultures, either in liquid or in tablet form. The potency of these cultures was the object of this investigation.

These cultures are sold either as liquid cultures—broth or whey—or in the dried form as tablets. The majority of the manufacturers simply label their product as living cultures of *Bacillus bulgaricus*, but do not state how many living organisms are present. Some state the number of bacilli present, but add that the count was made by some staining method (Wright), which method does not differentiate between living and dead organisms. As the therapeutic agent is the acid produced by the metabolism of the living organism, any count which does not differentiate between living and dead organisms is of no importance.

The *Bacillus bulgaricus* grows with difficulty on the usual laboratory mediums, but grows readily on mediums containing milk or whey. It ferments glucose and lactose readily, producing a large amount of acid, and the resulting acidity gradually kills the organism. It is this factor of acid production which is one of the principal causes of the rapid deterioration of the liquid preparations.

The names of the preparations tested are not given because not sufficient of each was tested to say which were uniformly bad or good. In the liquid preparations, those giving the highest counts were all obtained direct from local manufacturers from freshly prepared lots. The same preparations bought in the open market in other parts of the country would undoubtedly show much poorer results. In the more complete investigation which is being continued, I hope that results will be more definite, and that I shall be able to publish the names of those manufacturers who control their product so that it is uniformly good, and also to expose those whose preparations are practically inert or heavily contaminated.

In order to make an exact count of the number of living organisms in the preparation, it is necessary to plate them in suitable mediums in varying dilution, and after incubation to count the number of colonies. As the different strains of *Bacillus bulgaricus* vary in their cultural characteristics, each specimen was plated on four different mediums, and the highest count obtained on any one of the four mediums is the count that is listed. Plates were examined after three days' incubation at 40 C. (104 F.). The final count was made after five days' incubation.

The following plating mediums were used.

1. Veal infusion glucose agar.

To the veal infusion were added 2 per cent. agar, 2 per cent. glucose, 0.5 per cent. salt and 2 per cent. peptone, and the medium was titrated to 1 per cent. acid to phenolphthalein.

2. Whey glucose agar.[1]

Whey was obtained by adding glacial acetic acid to hot milk. To this were added 2 per cent. peptone, 2 per cent. agar and 1 per cent. glucose, and titrated to 1 per cent. acid.

3. Whey glucose calcium carbonate agar.[2]

This was the same as the previous medium, with the addition of a few drops of sterile powdered calcium carbonate in water just before plating.

4. Veal infusion whey glucose agar.

This was the same as the first medium, but after cooling to 45 C. (113 F.), one-fourth the volume of warm whey was added. This whey was prepared by rennet coagulation of certified milk. The coagulated milk was heated in the Arnold, and the whey thus obtained was filtered through paper and then sterilized.

Each specimen was also inoculated into the following tube mediums:

1. Litmus milk.
2. Whey.
3. Peptone glucose whey.
4. Veal infusion broth.

These tube inoculations served to control the plating mediums. In no case in which similar organisms were not obtained on one of the plating mediums was a growth obtained in any of the tubes.

The following specimens were tested:

1. Liquid. Obtained direct from manufacturer, freshly prepared lot. Broth culture in small bottles. Not dated.

1. Heineman and Hefferan: A Study of Bacillus Bulgaricus, Jour. Infect. Dis., 1909, vi, 304.

2. Bendick: The Use of Calcium Carbonate in Solid Media for the Differentiation of Sugars Fermenting Bacteria, THE JOURNAL A. M. A., Oct. 21, 1911, p. 1343.

Aug. 7, 1914, count showed 5,200,000 organisms per cubic centimeter. August 24, count showed 1,400,000. September 1, count 1,200,000. October 13, 1,200. October 30, specimens were sterile.

2. Liquid. Direct from manufacturer. Freshly prepared. Not dated. Direct plating, August 7, showed 40,000,000 per cubic centimeter, but by September 1, specimens were sterile on three separate examinations.

3. Liquid. Large bottle containing clear fluid with a heavy white precipitate which was readily miscible. Bought from retail druggist, Nov. 24, 1914. Was dated with date of manufacture, Oct. 24, 1914, with statement that it was good six weeks from date. Direct plating showed 5,600,000 per cubic centimeter. No contaminations. Organism grew vigorously and fermented dextrose rapidly. By December 9, the count had fallen to 1,700; December 31, to 124.

4. Liquid. Broth culture in small bottles. Bought from retail druggist, Nov. 24, 1914. Expiration date, Dec. 28, 1914. Immediate plating showed a count of 6 per cubic centimeter. December 7, specimen was sterile on three separate examinations.

5. Liquid. Bought direct from manufacturer, Nov. 26, 1914. Expiration date, June 30, 1915. Broth in small bottles. Direct plating, one bottle gave a count of 12,400 per cubic centimeter, but another bottle gave a count of only 2 per cubic centimeter. Dec. 31, 1914, one bottle gave a count of 95; another was sterile.

6. Liquid. Broth culture in small bottles. Left by demonstrator at physician's office. Expiration date, Jan. 23, 1915. Direct plating, Dec. 1, 1914, showed specimens sterile on three separate examinations.

7. Tablet. Bought from wholesale druggist, Dec. 3, 1914. Expiration date, Feb. 1, 1915. Tablets disintegrated rapidly in water, forming uniform mixture. Direct plating gave a count of 21,600 per tablet. December 15, a count of 10,200 was obtained.

8. Tablet. Bought from retail druggist, Dec. 9, 1914. Expiration date, April 23, 1915. Direct plating gave a count of 120 bacilli in a tablet.

9. Tablet. Bought from wholesale druggist, Dec. 3, 1914. Expiration date, March 1, 1915. Plating showed the tablets to be loaded with contaminations, a count of 59,200 other organisms being obtained. A moderate number of the *Bacillus bulgaricus* were present. Direct examination under the microscope of a tablet crushed in water showed the presence of numerous short motile bacilli, also a few long non-motile bacilli. Milk fermentation was atypical, digestion of the milk occurring with gas fermentation.

10. Tablet. Bought from retail druggist. Not dated. Told would keep indefinitely. Immediate plating showed numerous molds and a few short motile bacilli. On broth a heavy pellicle was obtained, and the milk was digested and gas formation occurred. No bacilli of the bulgaricus type were isolated.

11. Tablet. Bought from wholesale druggist, Oct. 19, 1914. Expiration date, Nov. 28, 1914. Immediate examination gave no growth on the plates, or in the milk, whey or broth.

12. Tablet. Obtained direct from manufacturer. Freshly prepared. One tablet gave a count of 105. Another 62. Three tablets were sterile.

Heineman and Hefferan[1] have demonstrated that *Bacillus bulgaricus* occurs normally in the feces of cows, horses and human beings; also in market milk and in soil. There is consequently no significance in the ingestion of a few bacilli in the commercial preparations. To be effective, the organisms should be present in large numbers. The commercial preparations should therefore be more carefully controlled, especially during transit and storage. I would suggest the following changes:

1. Preparations should be marked with the average number of living organisms to the cubic centimeter as determined by cultural tests, and also what percentage of these will be alive after definite intervals. This method would allow of accurate dosage, and give useful information. A count by the Wright method or a Gram stain is of no significance.

2. Preparations should be marked with the date of manufacture with a statement of how long the preparation is potent. The present custom is to date with an expiration date, which method is a temptation to an unscrupulous dealer, and does not tell the age of the preparation.

3. Preparations should be kept in a suitable ice box as much as possible from the time they leave the manufacturer till they reach the patient. Cultures should therefore be obtained either direct from the manufacturer or from a few well-controlled supply depots.

CONCLUSIONS

1. The majority of the preparations of *Bacillus bulgaricus* contain only a small fraction of the number of living organisms that the manufacturers represent. Many of the preparations as sold at retail are sterile, containing no living bacilli of the bulgaricus type or any other living organism.

2. The majority of organisms as seen in a stained specimen are dead and hence are of no significance.

3. Broth cultures obtained direct from the manufacturers are the best preparations.

4. Tablets are useful if the product is to be conveyed a considerable distance. Some preparations of the tablets are potent, many are sterile, and some are heavily contaminated.

I desire to acknowledge my indebtedness to William H. Park, director of the laboratory of the New York Department of Health, for the material and for many valuable suggestions in the course of this work.

A MONILIA FOUND IN CERTAIN CASES OF SPRUE

PRELIMINARY NOTE

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Major Medical Corps, U. S. Army; President of a Board for the Study of Tropical Diseases as they Exist in Porto Rico, Collaborating with the Institute of Tropical Medicine and Hygiene of Porto Rico

SAN JUAN, P. R.

In the course of the study which I am making of certain cases of sprue in the laboratory of the Institute of Tropical Medicine and Hygiene, my attention has been called to the presence, in the four cases in which I have made cultures from the *inflamed* tongue, of a Monilia not described by Castellani and Chalmers,[1] or mentioned by Bahr.[2] My failure to find the organism in apparently normal tongues of convalescents from sprue has prompted me to write this preliminary note. In one case culture from the uninflamed tongue was negative, although the patient was desperately ill from one of the intestinal localizations of the disease so familiar to those who know sprue clinically. Only when the intestinal symptoms subsided and the tongue became inflamed was a successful growth obtained. This case has shown repeated and severe desquamatory inflammation of the tongue, so that persistent effort would have possibly demonstrated the organism

1. Castellani, Aldo, and Chalmers, A. J.: Manual of Tropical Medicine, Ed. 2, New York, William Wood & Co., 1913.
2. Bahr: Researches in Sprue, 1912-1914, Jour. Trop. Med. and Hyg., July 1, 1914.

in the deeper layers of the epithelium, even during the quiescent period. In the few normal tongues which I have examined I have not yet found this Monilia.

Of the four positive results obtained, three were in children; one 12 years of age, in whose family mother, father and sister all give histories of recurrent exacerbations of sprue; one a child of 2½ years, whose clinical picture leaves no room for doubt and whose mother also gives a history of intestinal fermentation and inflammation of the mouth; and the third in an infant of 15 months, whose symptoms resemble thrush but in whom a tentative diagnosis of sprue must be entertained, because of the four months' duration of his stomatitis in spite of treatment, his repeated fermentative "indigestions," and the fact that his mother suffered from an aphthous stomatitis with violent inflammation of the tongue just previous to her baby's illness. The fourth is a typically severe case of sprue in a high official of the federal government, diagnosed by me over a year ago. On going North for a vacation he received a confirmation of that diagnosis from a former practitioner in the far East and now an instructor in tropical diseases in one of our Northern schools.

The salient features of the work so far done are as follows: Plate cultures were made of scrapings from the inflamed dorsum of the tongue, and the Monilia was thus isolated and planted in plain bouillon. After several days' growth the various mediums were infected. In the case of all liquid mediums, two tubes were incubated together, one infected and the other not. In the case of the sugar bouillons, three tubes were used for each; one fermentation tube, one litmus tube and one without litmus. This was done in order to determine accurately by titration the changes in reaction due to the culture. The method of standardization recommended by the Bacteriological Committee of the American Public Health Association was strictly followed. The mode of procedure was as follows: After fifteen days' incubation at 34 C. (93.2 F.) the two infected tubes of a given sugar medium were examined to see if contamination by bacteria had occurred. Then the infected medium of the fermentation tube was titrated, 5 c.c. to 45 c.c. of distilled water, using as an indicator 1 c.c. of a 0.5 per cent. phenolphthalein solution in 50 per cent. alcohol. The titration was carried out at boiling point and the same was repeated with the cold culture. The litmus tube was used, not so much for a control as for the purpose of watching the varying reaction during the course of the fifteen days' incubation. Care was taken accurately to titrate the mediums before infection, and all three tubes were filled with the same lot of mediums.

Litmus Milk.—Rendered alkaline; no clotting or decoloration.

Glucose Bouillon.—First few days strongly acid, with production of much gas. Thereafter litmus tube generally becomes blue and gas diminishes to a mere bubble. Titration, however, still shows neutral or a slight increase in the acidity over control.

Levulose Bouillon.—Much gas and is rendered acid. Gas diminishes to a mere bubble at the end of fifteen days.

Maltose Bouillon and Beerwort.—Same as for levulose.

Galactose and Saccharose Bouillons.—Rendered acid.

Lactose, Mannite, Dulcite, Dextrin, Raffinose, Arabinose, Inulin, Erythrite, Amygdalin, Asparagin, Isodulcite and Plain Bouillon.—All lose decidedly in acidity save mannite and dextrin, which are little changed as compared with the control.

Blood Serum.—On this a scanty, almost invisible white growth was distinguished. There was no brownish pigmentation, nor was the medium liquefied.

Gelatin.—On this there was a growth all along the stab, with fine brush-like villous extensions. It failed to liquefy gelatin even after two months.

Dunham's Peptone Solution.—On this no indol was produced, nor was the reaction altered.

Bouillon.—The growth on this was characterized, not precisely by the formation of a pellicle, but by a heavy collar at the surface, the result of the adherence of mycelial elements to the glass. This collar at times became a coriaceous pellicle resembling a false membrane, which in due time fell to the bottom of the tube, another being formed at the surface later on. In all bouillon cultures the medium remained clear, save for the sputum-like shreds and deposit.

Solid Mediums.—The growth on these is creamy white. At first the colonies are round, almost hemispherical, with even border sharply delineated from the mediums, but later these colonies rapidly run together and form a thick creamy white layer on the whole surface of the agar. All the sugar agars were sown, as well as potato and carrot, plain and glycerinized.

The growth on glucose, levulose, maltose and saccharose agar is exceptionally heavy, in the order named. The organism grows well on very acid mediums, even to + 4.5.

A hypodermic injection of a few drops of a ten-day culture in plain bouillon into the muscular tissue of the tongue killed a large rabbit in seventy-five hours. After forty hours, severe diarrhea came on with the production of much gas. Death occurred from general mycosis. The necropsy was performed one hour and a half after death, approximately, by myself and Dr. W. W. King of the United States Public Health Service, member of this institute. A necrotic spot was found in the tongue at the site of the injection, and a high grade of congestion of lung, liver and kidneys was demonstrable. All the serous cavities were found normal. A heavy creamy white mucoid coating was found on the stomach and small intestine. Cultures were made under the usual strict precautions against contamination, from liver, spleen, kidney, lung, the muscular tissue of the tongue, and the heart's blood, on Sabouraud's glucose agar slants, and pure cultures were directly obtained without the appearance of any other organism. As the animal accidentally received 1 or 2 gm. more by mouth, owing to the leaking of the syringe, cultures were made from the mucoid layer coating the stomach and small intestine, and an abundant growth was recovered. The details of the biologic study of this Monilia, together with feeding experiments in monkeys and other laboratory animals, will appear in a forthcoming report of the Institute of Tropical Medicine and Hygiene of Porto Rico.

The Ideal Commonwealth.—Our youth will dwell in a land of health, amid fair sights and sounds and receive the good in everything; and beauty, the effluence of fair works, shall flow into the eye and ear like a health-giving breeze from a purer region, and insensibly draw the soul from earliest years into likeness and sympathy with the beauty of reason.—Plato, Book III, of the Republic.

NITROUS OXID GAS ANALGESIA IN OBSTETRICS

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For many years chloroform and ether have been used to alleviate the pains of women in labor. Valuable as these agents are when deep anesthesia is required for the carrying out of operative procedures, they have not proved satisfactory as analgesic agents. If administered in small quantities at the commencement of a strong uterine contraction, the patient does not usually inhale sufficient to abolish pain. She is then apt to be irritated and is certain to insist on being given a larger quantity. If a sufficient amount be administered to satisfy the woman, the continued repetition gradually inhibits the power both of the uterus and of the accessory muscles, so that labor is unnecessarily prolonged, and, possibly, the life of the fetus endangered. Physicians have, therefore, been accustomed to employ these drugs very sparingly, restricting their use to the very end of the second stage, during the painful passage of the head through the vulva. The results of the administration at this time are also uncertain. If delivery be rapid the woman may not be able to inhale sufficient to abolish her consciousness of pain. If it be slow she may take too much and weaken the muscular powers, thereby prolonging labor and, often, necessitating forceps delivery. It is not surprising, therefore, that the medical profession has long been hoping that a more satisfactory method of relieving the pain of labor would be found.

Within recent years a new procedure, "made in Germany," has been introduced, consisting in the administration of scopolamin and morphin early in labor. In spite of the publicity which has been given to this so-called "twilight sleep" method by the lay press it has not found favor with the great majority of leading obstetric authorities in Europe or America. They are too well aware of the uncertain effects produced by the mixture and of the complications which may be caused, to adopt it. For many generations obstetricians have avoided the use of morphin, except in rare cases, because of its bad effect on the child and its interference with muscular activity in the mother. Scopolamin is variable and uncertain in its action and very often produces marked excitement in the woman, which may greatly interfere with carrying out of a clean technic. The lay press has not referred to the mental disturbances which have been produced nor have they made known that in that part of Germany where the procedure originated, a large number of damage suits have been instituted in the courts against prominent physicians, because of various ill-effects alleged to be due to "twilight sleep."

The advocates of the German method insist that it must not be used by the ordinary practitioner but by obstetric experts. Ordinary hospitals are not even considered suitable. Special chambers with luxurious and harmonious esthetic equipment, isolated and soundproof, doctors and nurses wearing noiseless slippers, speech carried on in quiet whispers—these are the accessories especially recommended for obtaining success with scopolamin-morphin.

We doubt the possibility of reaching success with it in an American city.

About ten years ago, in my service at the Presbyterian Hospital, I began to use nitrous oxid gas in certain complicated obstetric cases: for example, version, forceps-delivery, vaginal cesarean section and repair of lacerations. Later, I performed several abdominal cesarean sections in cases in which ether and chloroform were contra-indicated.

It was noticed that the administration caused no ill-effects to mother or child, did not affect the strength of uterine contraction or lead to post-partum inertia. On a number of occasions I employed the gas during the passage of the head through the vulva, in normal cases, relieving the patient's sufferings without interfering with the progress of delivery.

In recent years, as a result of the employment of nitrous oxid gas (usually with 3 per cent. of oxygen), as well as of local anesthesia, ether and chloroform have been much less employed than formerly.

During the past year a new departure has been made in the maternity service of the hospital, namely, the use of nitrous oxid in labor to abolish the pains caused by uterine contractions. Careful observations have been made by different members of the staff, including Drs. Lynch, Heaney, Davis, McCullough, Hixon and Wells. We are in entire agreement as to the complete success of the method in relieving women of the sufferings of childbirth. The technic is very simple. Usually the administration is begun when the patient complains of second stage pains, though it may also be used during the first stage. In the majority of cases, however, gas is not necessary during the greater portion of this period. It is very important that women should not be educated to regard labor as a terrible experience, something akin to a surgical operation, necessitating the free use of anesthetics. The large proportion of patients suffer comparatively little severe pain. Very often the support and encouragement of a judicious physician or nurse have a marked effect in subduing nervousness and distress. It is to be hoped that the new movement in obstetrics will not result in destroying courage, self-reliance and endurance in our women. The apparatus is that ordinarily employed by dentists.

It has been found best to use a small nasal inhaler, the mouth of the patient being uncovered. The gas-bag attached to the tank is kept under low pressure and, as the pain begins, the patient is instructed to breathe quietly, keeping her mouth closed. Ordinarily, light inhalation suffices to produce the analgesic effect. It is not necessary to cause asphyxiation or jactitation, which are due to the inhalation of large quantities of gas. Expulsive efforts on the part of the patient are not interfered with, to any appreciable extent. As soon as the uterine contraction begins to subside the inhaler is removed and the patient is again conscious. This procedure may be kept up for hours if necessary. A nurse or assistant may be instructed so as to carry out the administration satisfactorily.

Pure nitrous oxid gas or gas with oxygen (3 per cent.) may be employed. The former is, perhaps, most universally applicable. It may be used in private houses as well as in hospitals, the necessary apparatus being small, compact and easily transported.

The amount of gas varies according to the duration of painful contractions, and the cost is therefore a variable factor. In the Presbyterian Hospital the ordinary small gas-tanks have chiefly been used, the expense of administration being comparatively small. In hospitals where large tanks may be employed, the cost may be reduced about one-half. Of course it is necessary to be careful not to waste the gas.

From our experience in the Presbyterian Hospital, this method is recommended as the safest and simplest method of conducting painless labor.

Its advantages are as follows:

1. The apparatus is simple, easily transported, and may be used by any practitioner.
2. Deep anesthesia is not necessary.
3. There are no ill-effects to mother or child.
4. The strength of uterine contractions is not diminished, no matter how long the administration of the nitrous oxid gas is continued.
5. The administration is under control all the time, and can be stopped at any moment. This is a very decided advantage which is not possessed by any method which necessitates placing a patient under the influence of drugs administered internally.

NITROUS OXID GAS ANALGESIA IN OBSTETRICS

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Nitrous oxid in anesthesia has become most popular during the last few years. Gas and ether machines have undergone marked improvements. Their use in surgery and dentistry is well-nigh universal. Analgesia has supplanted anesthesia in a considerable field of surgical work. Analgesia is obtained during the first stage of anesthesia. It is the stage of *Dammerschlaf*, the threshold of sleep, in which stimuli to the skin cause no mental impression, and consciousness is disordered.

Since July, 1913, I have used gas for long-continued analgesia in my obstetric work. The method should not be confounded with the old and well-known use of gas during the past generation, given to deeper stages of anesthesia about the time of actual birth. The results obtained by this new method have been astonishing. There is freedom from pain. There are no bad effects for mother or child. The gas in analgesic doses appears to stimulate the uterine pains. There is no doubt of the patient bearing down more energetically when under the influence of the drug. I made mention of the method at the Michigan State Medical Society at Flint, Sept. 1, 1913.[1]

I have used the method for more than one hour in thirty-four cases. Analgesia has been maintained from the latter part of the first stage, or from the time when the pains became severe; and all have said that pain was negligible and practically nil. There are twenty-five primiparas and nine multiparas in the series. Analgesia was continued in thirty-four cases more than one hour; in thirty-two cases more than two hours; in twelve cases more than three hours; in four cases more than four hours, and in one case more than six hours. Three cases were terminated with forceps with the gas carried to surgical degree. They were all primiparas, one of 39 years, one of 35, and one of 25, in whom there was transverse arrest of the head. There was no case of inertia, post-partum hemorrhage or shock.

The method is suitable for patients at their homes or in the hospital. Any gas machine with a Hewett stopcock permitting the admixture of oxygen and gas will do. I use a small portable machine, which holds four tanks. The best results are obtained with a nose-piece such as is used by dentists, but the ordinary mouth-piece will answer. I have hitherto started the treatment when the pains have become severe enough to occasion complaint. Pure nitrous oxid gas is turned full on at the beginning of the pain, and the patient is told to breathe deeply but rapidly through the nose. Five or six respirations suffice to produce analgesia, even in the presence of the uterine contraction. The nose-piece is now placed over the mouth. The patient is told to breathe through the mouth, and analgesia is maintained by admixing oxygen with the gas until the end of the pain. This process is repeated with each pain. The percentage of oxygen varies from nothing to 10 per cent. It is more difficult to maintain analgesia with the mouth-piece without wasting much gas, since the depth of anesthesia is now more difficult to control. Oxygen must be used more freely. When the head distends the perineum, the anesthesia is carried to the surgical degree, and the color of the patient is controlled with oxygen. Separate tanks of gas and oxygen are best and cheapest. Their small size admits of easy transportation. Separate tanks permit the variations of percentage of oxygen. With these small tanks the method costs from four to five dollars per hour, varying with the duration and frequency of the pains and the skill of the operator.

Gas is the ideal drug for conducting labors. It is the most volatile of anesthetics, acts most quickly, and its effects pass away most rapidly. It is practically free from danger even when continued for analgesia of many hours. This may be evinced from the work of Woodyatt.[2] A number of dogs were sensitized to toxins by removal of their glycogen. No animal thus treated survived ten minutes of chloroform narcosis. There were marked changes in the secretions of the dogs anesthetized for the same period with ether. Yet two hours of anesthesia with nitrous oxid caused no demonstrable tissue injuries, and the changes in the secretions were trivial or nil. Theoretically, therefore, we may expect to continue analgesia throughout the entire labor, with trivial resultant injury. Nor does the drug cause, as chloroform, lesions of the fetus, since there is no resultant tissue asphyxia on which are dependent the visceral and hemorrhagic diseases of the new-born (Graham).[3]

This method is not original with me, and was first seen July 12, 1913, in a case which I saw with my colleague, Dr. Junius Hoag. The patient was the daughter of Mr. Clark, a maker of instruments for anesthesia, who had sought at his own risk to try in his family the method which his demonstrators were teaching for dentistry. The analgesia was maintained for four hours, with anesthesia to surgical degree, for purpose of delivery. The method was also independently developed by Dr. Heaney about six months later, who tells me he has a considerable series of cases about ready for report. He is likewise most enthusiastic over the method.[4]

I am of the belief that this will make the use of scopolamin-morphin unnecessary in the treatment of private cases. Its ease of administration and freedom from danger speak volumes for its popularity. Nor is the technic complicated or the good results limited to one man. Unlike the Freiburg method, it is adapted to work in the private home, and is devoid of its many dangers.

104 South Michigan Avenue.

1. Lynch: Jour. Michigan State Med. Soc., 1913.
2. Woodyatt: Tr. Soc. Exper. Biol. and Med., March, 1914.
3. Graham, Evarts: Jour. Exper. Med., April, 1912.
4. Personal communication to the author.

LEAD POISONING FROM THE USE OF COSMETICS

TWO CASES OF THE NEUROMUSCULAR TYPE

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Many monographs have been written concerning industrial lead poisoning. It is quite generally understood that file making and jewel polishing, the making of cheap kitchen ware and the polishing of cut glass, are notoriously dangerous trades in Europe. In the United States, workers who rub with sandpaper the newly painted bodies of railway coaches, carriages and automobiles, the laborers in white lead factories and the makers of storage batteries or electrical accumulators, because of non-protection, are in more danger of lead poisoning than are those who work at the same trades in Europe.

It is my desire to call attention to a form of lead poisoning other than industrial, which I believe to be quite common, and which in my opinion impairs the health and lessens the efficiency of a not inconsiderable number of our female population.

There are three channels by which lead may enter the body: the skin, respiratory passages, and alimentary canal. Of these three channels of absorption the former is least and the latter the most important. However lead enters the body, it may impair the structure and disorder the function of any of the organs and tissues. It destroys the blood cells, causes arteriosclerosis, accumulates in the liver causing fatty degeneration of the hepatic cells, hinders the normal intestinal peristalsis, but its baneful influences are exercised principally on the kidneys and the cerebrospinal nervous system. It causes a parenchymatous, followed by an interstitial, nephritis, seriously impairing the function of the kidneys.

The nervous system is especially prone to be affected by lead. The most dangerous and fatal form of lead poisoning is the cerebral type, which has been termed lead encephalopathy. Epileptiform convulsions constitute the most prominent symptom. Death may follow very shortly the onset of such convulsions, or the patient may recover to be totally blind or deaf. Neuroretinitis may occur without any concurrent kidney disease. This is another serious and grave type of plumbism which may be accompanied by epileptiform convulsions. Hysterical manifestations may develop from lead poisoning, as may a condition resembling general paralysis of the insane, delirium, coma, and hemiplegia. Under the influence of lead intoxication, the pyramidal cells in the ventral horns of the spinal cord may degenerate giving symptoms of poliomyelitis. A type of muscular incoordination which has been designated pseudotabes is of not uncommon occurrence.

Of the various neurologic manifestations of plumbism, the neuromuscular type is the most common. There are two factors operating to produce this condition. First, the direct presence of the lead; second, the retention in the system of toxins because of the hypofunctioning of the excretory organs, for which the lead is responsible. The pathology has not been definitely determined. Some believe it to be central and of the nature of poliomyelitis, others contend that it is entirely peripheral and of the nature of a neuritis. The most common form of the neuromuscular type is symmetrical wrist-drop due to paralysis of the extensors of the wrists. The patient usually experiences pain or numbness in the muscles of the forearm and leg and generally a few attacks of colic, and suddenly or gradually loses the power of extending his wrists. It is usually bilateral and atrophy generally follows.

While simple wrist-drop with paralysis of the extensors is the most common form of neuromuscular type of lead palsy, other types do not infrequently occur. The scapulohumeral type involving the shoulder girdle and humerus, occurs occasionally. All the muscles of the shoulder, arm, forearm, wrist and hand may be paralyzed symmetrically. The muscles of the lower extremities are not commonly paralyzed as the result of lead intoxication, but a peroneal type of paralysis occasionally occurs. The muscles chiefly affected are the long extensors of the toes and the peroneals, the anterior tibials escaping. This type of paralysis is more frequently met with in children than in adults. In the more chronic types of lead intoxication, the paralysis, occasionally, either slowly or quickly extends to all the muscles of the limbs, hands, feet and even of the trunk. In these cases the symptoms are commonly those of multiple neuritis. The paralysis is either accompanied or followed by muscular atrophy, the muscles usually giving the reaction of degeneration. It is commonly preceded by colic, numbness of the fingers and toes and may be accompanied by pains in the extremities. In one type of generalized form, the deep reflexes are exaggerated and the extensor toe phenomenon is present. This is called the amyotrophic type, but ordinarily the deep reflexes are lessened or absent and the extensor phenomenon is not present.

The following case reports are chiefly interesting because of the manner of entrance of the lead into the system.

CASE REPORTS

CASE 1.—B. F., aged 22, single, seamstress, consulted me in 1912 concerning a paralysis of the upper extremities. Family history of no special interest. Past history, usual diseases of childhood; generally healthy. Had been a seamstress for some years. Had no serious illness. All functions had been normal up to a few months previously. Present illness began two months previously. Had numbness and tingling sensation of fingers for a short period. Onset of paralysis was gradual. Atrophy accompanied paralysis. Was not painful and was not preceded by colic.

Examination.—Well developed young woman; actual and apparent age about the same; no disturbance of functions of special sense organs. Thoracic and abdominal organs apparently in a normal state, excepting for slight constipation. Trunk and lower extremities normal in every particular, slight blue line on gums; muscles of shoulders, arms, extensors of wrists and hands paralyzed and atrophic. Very slightly decreased appreciation of prick and tactile stimuli over these regions.

Diagnosis.—Lead intoxication with a combination of scapulohumeral and wrist-drop type of neuritis. Patient alleged she had had no chance of getting lead into her system in any manner. I suspected that holding lead dyed thread in the mouth while sewing was responsible. On further investigation I found that the patient had for some years been using a cheap face powder called "Flake White." The "Flake White" as sold for this purpose is a levigated subcarbonate of lead and is rubbed on the face with a moist sponge.

Treatment.—The use of "Flake White" was discontinued, iodids and salines administered, and the patient recovered within a few months.

CASE 2.—I. H., aged 24, widow, housekeeper, consulted me in 1913. Complaints: Generalized pain, paralysis and muscular atrophy. Family history of no special interest. Past history disclosed the usual diseases of childhood; generally well until the last three or four years. Her husband lived but a short time after marriage. She gave vague history of

what she called rheumatism. Had similar attack three years previously, from which she recovered. Three months previously the patient was operated on for appendicitis, or rather was operated on because of pains in abdomen supposed to be appendiceal in character. Operation did not reveal appendicitis. The cause of pain was not determined at that time.

Present illness began three weeks previous to the above date. First with cramping in abdomen, pain and numbness in extremities. Extreme constipation; loss of appetite; hands and arms became weak. After weeks' duration the pain became worse in shoulders and arms and this was quickly followed by complete paralysis. The first symptom of paralysis observed was wrist-drop, which steadily grew worse; legs became weak and painful, until the patient was scarcely able to walk.

Examination.—Woman about 25, of the brunette type, apparently poorly nourished and somewhat emaciated. Appeared to be quite anemic. Organs of special sense functioning in normal manner. Tongue heavily coated; heavy blue line on gums. Muscles of entire upper extremities showed atrophy; tender to deep pain stimuli, and deep reflexes absent. Some lessening of response to the tactile and affective components of sensation, superficially. Reaction of degeneration present. Muscles of lower extremities generally somewhat wasted, much lessened in power, skin slightly anesthetic and analgesic; increased response to deep pain stimuli. Deep reflexes decreased. Arteries slightly sclerotic, blood pressure 160 and 105. Respiratory organs normal; red blood cells 4,040,000; white 12,800; hemoglobin 60 to 70. Examination showed many stipple cells. The urine contained lead.

Diagnosis.—A generalized form of lead neuritis. Wassermann reaction of the blood was positive; patient denied venereal history, and no other evidences of syphilis could be obtained. It is worthy of note, however, that it is not unusual to get a positive Wassermann in lead intoxication. This was obviously lead intoxication with generalized lead neuritis.

A question again arose as to how the lead got into the system. Diligent inquiries revealed no known means by which lead had been absorbed or consumed. When asked about face powder used the patient said she had been using "Flake White" since a small child and that her mother and grandmother had used the same form of face powder. An examination of a sample of powder in possession of the patient showed it to be levigated subcarbonate of lead. I assumed that the lead had been absorbed from the skin as the result of the use of this powder.

Treatment.—Patient was given ox-gall, iodids and salines, the ox-gall for its biliary stimulating properties, the iodids to dissolve the lead out of the tissues, and the sulphate of magnesia and soda to combine with such lead as might enter the gastro-intestinal canal and prevent its reabsorption. The patient improved very slowly, but when she passed from under my care was much improved though still not well. I have learned that she has continued to improve.

These patients represent two rather extreme types of lead intoxication due to skin absorption from a cosmetic. This face powder is and has been for years in general use, and it is my opinion that as a result of its use, many women suffer from lead intoxication of varying degrees, causing in them anemia, debility, constipation, etc., and perhaps nephritis.

I believe many cases of general nervous debility, some of insanity and perhaps other types of paralysis are caused by the use of cosmetics containing lead. I am convinced that lead absorbed in this manner is an important contributing factor in impairing the health and lessening the general efficiency of a considerable number of women.

Many of the vague and not understood abdominal pains are due to this cause. I believe abdominal sections are done because of lead colic, and some appendices removed for the same reason. Lead causes abortion and doubtless some of the unexplained abortions could be accounted for in this manner. The public should be warned against the use of "Flake White" as a cosmetic, and its sale for this purpose should be prohibited.

Rialto Building.

REPORT OF CASE OF TETANUS

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The following case is reported to add corroborative testimony to the efficacy of intraspinal administration of tetanus antitoxin as outlined recently by Park and later by Irons.

History.—Harry K., aged 11, a schoolboy, on November 10 was struck by an automobile while crossing the street, sustaining several lacerations. One, a deep gash above the ankle, was closed with about twenty silkworm-gut sutures. The other laceration, at a slightly higher level, was superficial.

November 19, the boy complained of a stiffness of the jaw which was easily apparent on examination.

November 20, a few slight convulsions were noticed.

November 23, no treatment given until this date, when 1,500 units of tetanus antitoxin were given intramuscularly.

November 24, the boy was unimproved and the dose previously given was repeated intramuscularly. The case was now referred to me by the family physician and the patient sent to the hospital.

Examination.—This showed a pronounced case of tetanus. The jaws were firmly set; a typical risus sardonicus and marked opisthotonus were present. Convulsions occurred about every fifteen minutes and were precipitated and intensified by the slightest noise.

The wound on the leg presented a dirty, ulcerating inflammatory appearance.

Urine: Acid; specific gravity 1.026. No albumin, sugar or casts. No blood count was made. Temperature, 101.4 (rectal), pulse, 120, respirations, 24.

Treatment.—Patient was taken to the operating room and anesthetized with gas and ether. Fifteen hundred units of antitoxin were given by the intraspinal route. The same amount was given intravenously. During the balance of the day no change was noticed in his condition. At the end of the day he had spasms quite frequently, necessitating the use of chloroform.

November 25, another injection of 3,000 units of antitoxin was given both intraspinally and intravenously. Spasms were quite marked during the day, and, as on the previous days, morphin and chloroform were administered at intervals. Toward evening the history notations indicate that the spasms became easier and shorter in duration. Pulse noted as stronger though rapid. Temperature, 101.2 (axillary). Pulse, 126.

November 26, spasms easier. Tendency to rest but still disturbed by spasms of short duration.

November 27, patient much better. Could take sponge bath with ease. Temperature 99.8, pulse 108.

November 30, the boy could turn head and body with comparative ease. Was disturbed only occasionally by twitching. Trismus much improved. Temperature, 98 (axillary); pulse, 88.

December 2, no evidence of twitching recorded. Could use back rest.

December 8, patient was allowed to be taken home, convalescing nicely. When he left the hospital the stiffness of his jaw, which was the last symptom to commence clearing up, was practically gone. He has progressed uneventfully since this date.

In connection with this case it is to be noted that the period of incubation was nine days, which thus

classifies it as an acute case. It was allowed to reach an extreme state with convulsive seizures occurring every fifteen minutes. Forty-five hundred units of tetanus antitoxin were slowly injected intraspinally according to the usual technic. Forty-five hundred units were given intravenously, which is somewhat below the amount usually deemed necessary. No antitoxin was given by the subcutaneous or intramuscular routes except the 3,000 units given before the patient was brought to the hospital.

The local treatment consisted in exposing the wound to a continuous stream of oxygen for thirty-six hours. Boric acid and alcohol dressings were used to counteract the local infection. Free use was made of cathartics. During the first two days in the hospital sedatives in form of morphin and chloroform were at intervals used. It would appear that in the intraspinal administration of tetanus antitoxin we have an agent that has robbed lockjaw of its despairing terrors.

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HYDROCEPHALUS

THE POSSIBLE RELATION OF A CONTRACTED PELVIS TO HYDROCEPHALUS DEVELOPING AFTER BIRTH

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While it is recognized that an obstruction of the foramen of Magendie or the aqueduct of Sylvius will cause hydrocephalus, yet, in searching the literature at my command I have failed to find an instance in which reference is made to delivery through a contracted pelvis as a possible cause of these lesions. For the present I wish to eliminate the developed congenital type of hydrocephalus and consider only those cases which appear normal at birth, but soon thereafter show abnormal cephalic development.

The pathologic findings of an advanced hydrocephalic, that is, the overdistended ventricles and their sequelae, require no reference in this connection, but the primary factors, that is, the occlusion of the foramen of Magendie or the aqueduct of Sylvius, do furnish special interest. The method of their occlusion, whether it be of an infectious or a mechanical nature, should be accepted as the primary factor for consideration.

I find but one instance[1] in which hydrocephalus was produced in the laboratory by mechanical obstruction, but the results from these tests were sufficient to demonstrate that a blocking of the ducts hindered a normal communication between the ventricles; that practically no absorption occurred in the ventricles, but on the contrary, a secretion of fluid which in time filled the isolated chambers to overdistention.

Accepting the foregoing, the possibility of a contracted pelvis causing abnormal compression of the child's head sufficient to occlude, if not obliterate the duct, would not be out of reason. The idea may seem far fetched, however, when the anatomic relations of the structures are considered. Not infrequently a child appears normal after a difficult labor, but soon thereafter portrays symptoms of hydrocephalus.

Lues and tuberculosis are usually considered as the causative factors when the condition occurs, but we are beginning to learn that these diseases are not responsible to the extent that was formerly believed. In fact, repeated complement-fixation tests[2] speak against the assumption of syphilis as a common etiologic factor.

An instance in which two successive children developed post-partum hydrocephalus, when both parents were free from stigmata of disease, but pelvic mensuration of the mother revealed a contracted pelvis, is of interest in this connection. A third child, delivered through a cesarean section, showing no abnormal symptoms several months later, lends additional interest, and is sufficient to serve as a forcible argument for the possibility of a contracted pelvis being the prime causative factor in many cases of post-partum hydrocephalus.

History.—Mrs. D., aged 29, well nourished; past history negative. Same is true of husband. Patient the mother of four children, two living and two dead. The first child was an undersized babe at birth, now eight years ago. Although the labor was very difficult, still it terminated normally. The child is to-day healthy in all respects.

The second child, born three years later, reached full term. The patient says that it was a very difficult and prolonged labor, terminated by instrumental means. The child appeared normal at birth, but shortly thereafter began to develop hydrocephalus. It lived three years. It was my privilege to see this little patient shortly before he died. I regret not having secured a photograph, as the case showed such a pronounced state of development. No complement-fixation test was made.

The third child was delivered under most difficult circumstances. He lived but a short time; at birth there were no symptoms of cephalic enlargement, but it was well marked at death.

A fourth pregnancy reached full term. In the meantime a pelvic mensuration had revealed a contracted pelvis. The patient had been in labor twelve hours when I was called. I found the os well dilated, and fortunately the sac was still intact. No engagement had taken place. She was removed to the hospital where I performed a cesarean section and delivered a normal child. The steps of the operation need not be mentioned here. The mother made an uneventful recovery. The child is to-day, four months later, apparently healthy and shows no signs of any abnormal cephalic development.

It would be rather presumptive on my part to infer that this child would have developed hydrocephalus, as did the two previous children, as there is of course no proof to substantiate this assumption, but the coincidence of the contracted pelvis and the fact that the last child is healthy and normal is sufficient to point toward the possibility of the previous labors being the prime causative factor in the two former cases. Be that as it may, the case is undoubtedly of sufficient worth to serve as a guide for other similar cases, if not of argumentative worth.

All the ingenious methods of von Bramann[3] and others to establish a communication between the two ventricles, are far from satisfactory. Here as elsewhere, if prevention is possible, it is far better than cure. The operation of cesarean section, when performed by a surgeon ready to cope with conditions as they arise, is not a formidable one, and is truly justifiable in later pregnancies when there is a contracted pelvis, and hydrocephalus has developed after a previous difficult labor. In case the hydrocephalus has developed in utero, the operation ought to be the

1. Dandy, W. E., and Blackfan, K. D.: An Experimental and Clinical Study of Internal Hydrocephalus, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2216.

2. Knoepfelmacher, W.: Hydrocephalus, chronicus internus, congenitus und Lues, Med. Klin., Dec. 6, 1909, No. 49.

3. Von Bramann: Puncture of the Corpus Callosum for Hydrocephalus, Deutsch. med. Wchnschr., Sept. 23, 1909.

procedure of choice as the barbaric operation of craniotomy is truly a more hazardous one, so far as the mother is concerned, than is cesarean section. As to the method employed, whether it be the classical section or the extraperitoneal, is of course optional with the surgeon. Both methods have their advantages.

REPORT OF FOUR CASES OF FOREIGN BODY IN THE AIR PASSAGES OR ESOPHAGUS*

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CASE 1.—*Jackstone in the Larynx.*—F. B., boy, aged 19 months, got a "jack" in his throat a month before admission to the Children's Memorial Hospital. He was playing on the floor when his mother picked him up to change his diaper. As she picked him up he grasped a couple of jackstones with which the other children were playing, and as his mother laid him on his back he dropped them. One of them went into his mouth. The mother took him at once to a hospital where some physician, probably an intern, assured her that there was nothing in the child's throat. He passed a stomach tube and told the mother that if the jack were in the throat the stomach tube would shove it on into the stomach.

The child's difficulty in breathing and swallowing continued so that she returned with the child to the hospital the next day. This time she says she was told that the child in all probability had a "cramp." She next took the child to the family physician, who treated the child for bronchitis.

After a month he was brought to the Children's Memorial Hospital, where a roentgenogram was taken and the jack located. During the four weeks that the foreign body had remained in the child's throat he could eat very little.

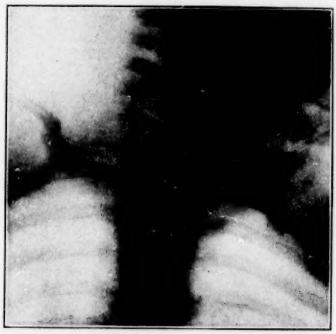

Fig. 1.—Jackstone in the larynx (Case 1).

On admission to the Children's Memorial Hospital his condition was fair. Breathing was difficult. The eyes, ears and nose were negative. In the neck there were palpable glands and distinct tenderness around the trachea. Examination of the chest showed difficulty in breathing, particularly on inspiration. The lungs and abdomen were negative. The roentgenogram showed the jack lying opposite the fourth, fifth and sixth cervical vertebrae (Fig. 1).

The patient was anesthetized with ether, and Bruening's speculum for direct laryngoscopy in children was introduced. On account of swelling at the entrance to the larynx, there was considerable difficulty in seeing the foreign body, although it could be easily felt with the speculum. Several attempts at grasping it proved unavailing; the speculum was removed and the foreign body grasped with a long pair of hemostats guided by the sense of touch. It was firmly imbedded and required some little manipulation and force to dislodge it. Only slight bleeding followed. The jack was so lodged that one of the ball-shaped ends was directed downward and lay within the lumen of the larynx. Another arm was directed backward, and lay between the arytenoid cartilages. The third arm lay crosswise within the lumen of the larynx, but above the vocal cords. The swelling of the aryepiglottic folds caught this arm, which was directed crosswise, and made the removal difficult.

The patient did well following the operation. He had a little fever for about three days. At one time he had so much difficulty in breathing that intubation was considered, but this cleared up without the necessity of intubating, and the patient was allowed to go home. He was somewhat hoarse when he cried, but otherwise he seemed well. Two days later he was brought back to the hospital with great difficulty on inspiration. I attempted to intubate but without success. The patient's condition in spite of inhalations of oxygen being very bad, I did a hurried tracheotomy without anesthesia. The day following the tracheotomy, the temperature reached 103, but declined soon afterward to 100. The next day it was normal. The tracheotomy tube had been in place one week and I was just ready to remove it when I was taken sick with scarlet fever and did not see the patient for six weeks. Meanwhile the tracheotomy tube had not been removed. When I removed the tracheotomy tube after it had been seven weeks in the trachea, the tracheal wound closed at once and no air could enter. The trachea was deformed by the long presence of the tube so no air could enter by the natural way. It was necessary to reinsert the tube at once to prevent death from asphyxia. Again I attempted intubation, but for some reason could not enter the larynx. It was necessary to enlarge the tracheotomy wound, but this could not be done with the tracheotomy tube in place on account of the flange on the tube. Accordingly the end was cut off a linen catheter the size of the tracheotomy tube, and this piece of catheter inserted instead of the tracheotomy tube. The tracheotomy wound was then enlarged and a very small linen catheter passed upward through this wound through the larynx until it could be drawn out of the mouth. The intubation tube was then threaded on this small catheter as a guide and shoved down until it reached the tracheotomy wound, when both catheters were removed and the tube pushed down past the wound. The wound was then allowed to heal, and in a week's time it was completely healed. The intubation tube was then removed, and the patient having no further difficulty, was discharged cured.

Among the interesting features of this case are:

1. The length of time a foreign body of this size remained in the larynx without causing alarming symptoms.
2. The ease of diagnosis by means of the Roentgen ray.
3. The difficulty of intubation.
4. The difficulty of establishing normal respiration after removal of the tracheotomy tube.

CASE 2.—*Bronchoscopy with Removal of Tack from the Right Bronchus.*—C. A., boy, aged 9, deaf-mute, was said to have swallowed a nail about 7 o'clock in the evening. Immediately afterward he had a coughing spell which lasted for a half hour. At 10:30 p. m. he was brought to the Children's Memorial Hospital and roentgenograms taken showing both frontal (Fig. 2) and lateral views of the chest. The pictures showed a foreign body resembling a nail 1 inch long with a rather large head lying behind the sixth rib, 1 inch in front of the vertebral column, and ¼ inch to the right of the margin of the sternum. The shadow showed the point uppermost.

I saw the boy about 1 a. m. of the following morning and had him prepared for immediate operation. He was resting quietly at the time. He was anesthetized with ether and a low tracheotomy done, after which a suitably sized bron-

* Presented by invitation before the Chicago Pediatric Society, Nov. 13, 1914.

choscopic tube was introduced and the nail found in the right bronchus lying with its point uppermost and caught in the tissues. I succeeded in getting the point dislodged and within the point of the bronchoscopic tube, where it was easily seized and withdrawn as far as the tracheotomy wound. Here the forceps slipped off, but fortunately my assistant caught the tack, as it proved to be, and prevented its slipping back into the trachea until I could grasp it with a pair of hemostats and remove it.

During the operation the trachea was stitched temporarily to the skin on either side with silk. At the close of the operation the stitches were cut and the parts allowed to fall back into their normal position.

The wound was packed lightly with sterile gauze, and the patient put back to bed. There was very little bleeding from the bronchus or trachea, and very little traumatism produced.

The foreign body was found to be an upholsterer's brass headed tack 1.8 cm. long, with a head 8 mm. in diameter. No cause for the deaf-mutism could be found in the history. He has one brother who is also a deaf-mute. Patient is said never to have given any sign of hearing.

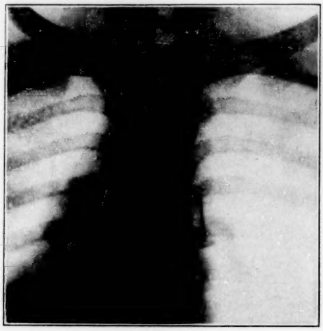

Fig. 2.—Tack in right bronchus (Case 2).

Following the operation the course was uneventful, and the patient was discharged from the hospital in two weeks with the wound healed.

This case was suitable for upper bronchoscopy, and under similar conditions in a hearing patient I would do an upper bronchoscopy; but in this case, because we could not communicate with the patient, nor he with us, it seemed advisable to follow the method most certain to succeed at first trial.

The fact that the tack caught in the tissues with the point uppermost might have led to serious trouble in a careless or forcible removal.

CASE 3.—*Arrowhead in a Secondary Division of Left Bronchus over Ten Months.*—W. T., boy, aged 10, aspirated the brass tip of a toy arrow, Jan. 2, 1914, and immediately had a severe coughing spell. From this time on he suffered with cough. On two or three occasions he had fever and was confined to bed for two or three weeks at a time.

He was treated by various physicians for bronchitis, tuberculosis, etc. About the last of April his father took him to Germany in the hope of finding some one who could relieve his troubles but found no one. Finally after his return to Chicago he was taken to the Children's Memorial Hospital, where a roentgenogram was taken (Fig. 3) and the diagnosis made by the patient as soon as he saw the picture. He pointed out the shadow of the arrowhead before any one else could say a word.

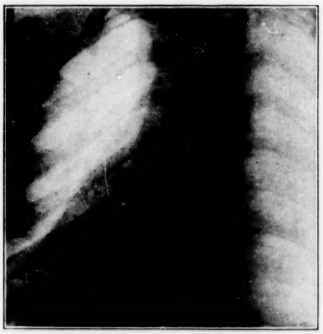

Fig. 3.—Brass arrowhead in left bronchus (Case 3).

Following the correct diagnosis, I was called on to remove the foreign body. I attempted it at first under ether by the upper method. As soon as the bronchoscope passed the vocal cords, the patient stopped breathing, and it was necessary to remove the tube before he again began to breathe. When breathing had been resumed, another attempt was made to do upper bronchoscopy, but again he stopped breathing, and it was necessary to desist.

A low tracheotomy was then done and lower bronchoscopy attempted, but the patient did so poorly under ether that it was necessary to stop and wait for more favorable circumstances. A tracheotomy tube was inserted, and after a week an attempt was made under local anesthesia. The left bronchus and all its divisions and subdivisions that could be found were inspected and probed, but nothing found. Again it was necessary to stop.

Following this attempt, the patient's temperature ran up to 103, and it looked as if he were going to have an attack of pneumonia; but in a few days, under the administration of guaiacol carbonate, his temperature declined to normal, and a week after the second attempt, a third attempt was made under local anesthesia. This time the patient was given a hypodermic injection of 1/10 grain of morphin sulphate with atropin before the operation. At 10 per cent. solution of novocain was first sprayed into the trachea and later applied with a swab of cotton. The bronchoscope was then introduced, but as soon as it entered the left bronchus he had a severe coughing spell, and this cough could not be controlled until I had painted this area several times with a 5 per cent. solution of cocain. Finally, the coughing being controlled, all the secondary and tertiary divisions of the left bronchus were examined and nothing found. Finally, the bronchoscope being moved a short distance to the point where coughing had been excited, a small area of granulation was seen at the bottom of the tube. I attempted to brush this aside with a probe, and thought I saw the entrance to a secondary bronchus that I had not seen before. I passed a probe into this secondary bronchus, and thought that it touched a metallic body. The patient said he heard it touch. I then passed the expanding forceps into the same bronchus, opened it and withdrew it only to find that I had nothing. After swabbing out the bloody mucus I saw the edge of the arrowhead. I had drawn it partly out of the secondary bronchus and into the main bronchus, where it was easily seized and removed. Following the removal the patient's temperature rose 0.4 degree for a day. The second day it was normal and he was allowed to be up. At the end of five days the wound was so far healed that he was allowed to return home.

This case shows how a foreign body may cause pneumonia and symptoms of tuberculosis. It indicates how in chronic cases of lung disease, a roentgenogram or bronchoscopic examination may clear up the diagnosis. If the foreign body is opaque to the Roentgen ray, the picture is enough. If it is not opaque to the Roentgen ray, a foreign body may be found on bronchoscopic examination.

It is remarkable that a foreign body of this size, shape and composition did not make more lung symptoms. It must have acted as a ball valve, and the

signs of atelectasis should have been present. They were not found.

This case shows well how in a difficult case of foreign body in the bronchi it is well not to keep up the examination too long. It is better to stop short of danger to the patient and to repeat the examination at a later date. It also shows the advantage of local over general anesthesia. A roentgenogram showed that the arrowhead had moved between the time of taking the first picture and the third examination. It looks as if the foreign body had been touched by the bronchoscopic tube in one of the first two examinations and pushed a little farther down.

CASE 4.—*Open Safety Pin in the Hypopharynx.*—A boy, aged 19 months, got an open safety pin into his throat. He was brought to the Children's Memorial Hospital and a roentgenogram taken (Fig. 4). The pin could not be seen in the throat on ordinary inspection, but it could be felt on passing a finger down the pharynx. I seized the point with a long hemostat and disengaged it, guided by the sense of touch. Then while my finger rested on the point of the pin, the patient retched and forced the pin into the oropharynx, where it was easily removed.

This was an easy case for operation. The only danger was from the point of the pin. As soon as the point was disengaged, the patient did the rest. This pin caught at the first point of narrowing of the esophagus, and because of the point catching in the tissues, it could not be regurgitated. I am always anxious about these cases because the trauma to the esophagus may give rise to emphysema or to septic infection of the mediastinum, as in a case I saw with Dr. Friedberg, in which a general practitioner had attempted to push a bone on into the stomach with the result that he pushed it through the wall of the esophagus, where the septic infection caused the child's death.

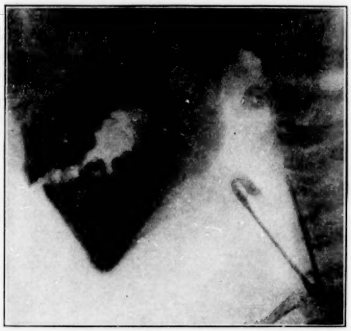

Fig. 4.—Open safety pin in hypopharynx (Case 4).

Taken as a whole, these cases show the very great aid to diagnosis given by the Roentgen ray. They also show what can be done by bronchoscopic methods in a class of cases that not many years ago were almost without means of relief.

122 South Michigan Avenue.

Rochester Life Conservation Plan.—Rochester has inaugurated a health campaign which it calls the "Live a Little Longer" plan. It originated with the board of education and consists at present in the employment of a nurse and a physician, who are to give in the various school buildings of the city two lectures each week for six weeks on all sorts of health and life conservation topics. The lectures are to be given in the afternoons after regular school hours and are open to all persons over 18 years of age. The plan has the support not only of the education body, but of the energetic chamber of commerce and other civic organizations and has the endorsement and active cooperation of the local representatives of the life insurance companies represented in Rochester, who have already sent out circular letters calling attention to the well planned course of instruction in health matters following the approval of the companies of the plan. It is hoped by the originators of the plan that it may become general throughout the country.

A SPECIMEN OF CONGENITAL INGUINAL IMPLANTATION OF THE VERMIFORM APPENDIX*

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It need scarcely be emphasized that the vermiform appendix may, on account of its free mobility, be found in a great variety of positions within the abdominal cavity. If it has not become somewhere adherent, the position in which it is observed at necropsy is doubtless more or less a matter of accident, dependent on the conditions within the cavity. The range of positions in which it may be found under conditions of pathologic immobilization is remarkable, and covers nearly the entire peritoneal cavity. Besides its more frequent locations about the cecum and in and about the pelvis, it not rarely is found within a hernial pouch, either inguinal, femoral or "retroperitoneal" in one of the pericecal fossae.

Of the types of true hernia in which the appendix may be involved the inguinal occurs most frequently. In this variety the organ may be found in the inguinal canal or the scrotum either as a part of or, more rarely, as the only viscus in, the hernial content. The readily available figures which bear on these conditions indicate the occurrence of cecal and appendicular hernias as about 1.65 per cent. of all hernias. In Coley's[1] analysis of 2,200 cases of hernia in which operation was performed at the Hospital for Ruptured and Crippled, no femoral appendicular hernia was found, and but seventeen cases (or 0.77 per cent.) of inguinal hernia in which the appendix or appendix and cecum was present. In but ten of these instances was the appendix alone present in the hernial sac.

Descriptions of hernias in which the appendix is found seem largely confined to the occurrence of a displacement into an inguinal evagination of the peritoneum, which sac occurred either congenitally or appeared in later life as a result of those influences ordinarily responsible for hernia formation. The congenital type is apparently not very rare and may, it has been asserted, be diagnosed in infants and children through the presence of the cord-like appendix in a thin-walled sac. Only the very rare hernias of the fallopian tube or of the ureter have to be excluded.

Whether the condition be congenital or acquired, however, the appendix in such a case is found, together with the cecum if present, within a peritoneal sac which may be entirely patent or more or less obliterated by inflammatory exudate or adhesions. Under such circumstances the hernial content as a rule retains, either in whole or in part, its original serous covering. This form of hernia is therefore but a less common variation of the ordinary inguinal hernia.

* From the Laboratories of Pathology, Charity Hospital of Louisiana.

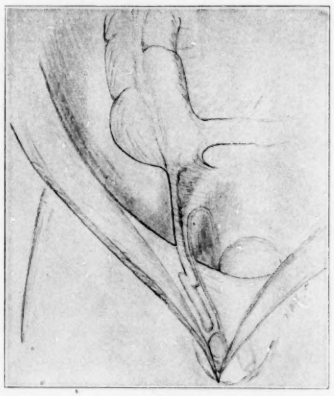
1. Coley: Keen's Surgery, Philadelphia, 1912, iv, 78.

The primary causes of appendicular hernia are usually held to be the presence of an unobliterated pouch of the peritoneum, together with an abnormally movable cecum. The so-called "sliding" hernia of the cecum is a separate condition and is due to a more or less gradual retroperitoneal displacement of this structure.

Of evidently different causation, and of interest from both the anatomic and the embryologic points of view, is the following instance of what apparently was congenital implantation of the appendix in the inguinal canal, in which no trace of a hernial sac could be discovered:

A. J., a colored male infant of 6 months, was admitted Nov. 21, 1914. For two days he had suffered a very severe "cold" with marked intestinal disturbance. The condition improved under treatment, though the child did not nourish well, and malnutrition became serious. A history of scaling of the hands and feet was obtained, and a specific infantile iritis observed. December 18, the temperature rose to 103 F. and continued irregularly high. A double otitis media, due to *Staphylococcus aureus* infection, soon appeared. The child became progressively worse and died, Jan. 1, 1915, primarily on account of a terminal pneumonia.

At necropsy, beside confirmation of the clinical diagnosis, the following interesting condition of the appendix was observed: On routine inspection of the cecum for the purpose of determining the position and condition of the appendix, this organ seemed at first to be absent. From its usual point of origin, however, and continuous with the anterior longitudinal muscle band, was seen a somewhat flattened, thick, white cord of tissue which ran directly downward for a distance of 6 cm. to the internal abdominal ring, covered throughout by a fold of the peritoneum. External examination of the inguinal regions and scrotum revealed only bilateral enlarged lymph nodes. No evidence of sac or other abnormal subcutaneous structure could be detected. On reflection of the skin and fascia over the inguinal canal and scrotum, the appendiceal band was traced downward to end in a slightly bulbous tip, a short distance above the testicle.



Congenital inguinal implantation of appendix.

The fold of the peritoneum in the free border of which the appendix lay was a thin membrane which extended from the caput coli to the internal ring, a distance of 6 cm., and was attached to the border of the true pelvis. It was evidently an extension of the meso-appendix, and being analogous to the so-called appendiculo-ovarian ligament of Clado, the mesenteric fold which is found when the appendix extends to and is intimately connected with the ovary, it might possibly be termed an appendiculo-inguinal ligament. This membrane was, as has been stated, 6 cm. in length and was from 1.5 to 2 cm. in width, from the free border to its line of attachment. In its lower portion the vas deferens was plainly to be seen as a pale, small, cord-like structure, running backward in the membranous fold to its usual position on the pelvic wall. This duct lay internally to the appendix in the inguinal canal.

The presence or absence of any peritoneal sac or evagination was carefully observed during the dissection. From the abdominal cavity there was no sign of downward extension of the serosa. At the internal ring the peritoneum was reflected smoothly from the appendiculo-inguinal fold posteriorly, laterally to the right and anteriorly. In the canal there was neither remnant nor trace of the funicular process of the tunica vaginalis or of a subsequently formed peritoneal diverticulum. The adventitia of the appendix was of the normal, rather delicate connective tissue to be found in the subcutaneous tissues of infants. There was no evidence of scar tissue following inflammation. About the testicle the tunica vaginalis was normal.

That part of the appendix which lay in the inguinal canal and scrotum measured 5 cm. in length. It presented a sharp Z-shaped bend so that, when freed and straightened, this infraperitoneal portion measured 6.5 cm., making a total length of 12.5 cm. from the cecum to the tip of the appendix. The organ was large, rather flattened, and the lumen was patent very nearly to the end.

COMMENT

Had the condition described above been primarily due to the congenital presence or subsequent formation of a peritoneal sac, all trace of such a structure was lost, and nothing could be found that would indicate the obliterating process. No undue fibrosis was present, and aside from the kinking, there was no apparent interference with the development or nourishment of the appendix, such as might be expected following obliteration of a hernial sac.

Even when there is a peritoneal diverticulum for the reception of an abdominal viscus, the appendix cannot ordinarily be included in the hernia content unless the cecum is abnormally mobile or exceptionally low. In the present case the cecum was snugly suspended in its usual position, and a distance of 6 cm. intervened between it and the internal abdominal ring.

In a hernia of the appendix, this organ with its mesenteric band, with or without the cecum, drops or is forced into the sac. In any event it is, certainly at first, completely covered by peritoneum. The appendix herein described was, strictly speaking, retroperitoneal, being covered on but three sides by a fold of this membrane.

In view of these facts, it is held probable that the appendix was, during the descent of the testicle, in some manner included in the downward movement, and that it was drawn as a part of the spermatic cord through the internal abdominal ring, and was left without serous covering in the inguinal canal by the normal obliteration of the funicular portion of the tunica vaginalis. In this way may be explained its great length as compared to the age of the individual, its inguinal migration with a normally situated and supported cecum, its relation to the peritoneum and to the vas deferens, and its position and appearance in the inguinal canal.

Work in Heart Disease.—Work benefits equally the patient suffering from heart disease as it does the healthy individual. The only difficulty is that of knowing how to regulate the exercise, so that it shall be both effective and at the same time not an undue strain for the heart.—G. Norman Meachen, *Medical Press and Circular*, Nov. 11, 1914.

New Instruments and Suggestions

A MICROSCOPIC TEST FOR PASTEURIZED MILK (PRELIMINARY PAPER)

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METHODS FOR DETECTING HEATED MILK

Numerous methods have been proposed to test quickly and simply whether or not a given sample of milk has been heated. The methods suggested fall into three main groups:

1. Those based on the changes which the protein undergoes when milk is heated. These have not proved applicable in practice.

2. Those which depend on the presence of oxidizing enzymes in milk. Of these, Storch's test is generally regarded as most satisfactory. This, however, as is well known, can be used only on milk heated from 78 to 80 C. (172.4 to 176 F.). It cannot, therefore, be applied to milk heated to the temperatures employed for pasteurization in this country.

3. A microscopic test devised by myself and described in a paper by Frost and Ravenel in 1911 (A Microscopic Test for Heated Milk, *Proc. Am. Assn. Med. Milk Commissions*, May, 1911, p. 127).

Two features of this method interfered with its usefulness. One was the difficult technic and the other was the fact that safranin clotted the milk unless added with the greatest care. So far it has been possible to avoid this danger only by diluting the stain, and in this case the action of the dye is largely neutralized.

PRINCIPLES INVOLVED

The original idea that I had in mind was that by means of an *inter vitam* stain it would be possible to color the living leukocytes, as I assumed them to be in raw milk, in one way, and the dead cells, if such they are, in the heated milk, in another way. The technic was suggested by that employed in making opsonic index determinations. That it is possible, with proper experience, to differentiate pasteurized from raw milk by this means, is still my firm conviction.

Further study, however, has shown that it is possible greatly to simplify the technic, and at the same time emphasize the differential characters. It has also appeared that the principle of *inter vitam* staining need not be considered. The attempt can rather be made to stain the dead cells deeply and characteristically in the heated, and contrast these with the unstained or at most slightly tinged cells in the raw milk. It thus appears that the method here described may as well be considered a new method as a modification of the former or previously described method.

METHOD OF PERFORMING THE TEST

One part of a saturated aqueous solution of methylene blue is added to 5 parts of the milk to be tested. The dye should be added to the milk slowly to prevent the possibility of the stain coagulating the milk, for when this coagulation occurs the test is rendered unreliable. The method of adding the stain, which I have usually followed, is to put the milk in a small flask or beaker and add the dye slowly from a small pointed pipet while the milk is kept in motion by a rotary movement of the vessel.

The stain should be left in contact with the milk for from fifteen to thirty minutes, and then the sediment of the stained milk is precipitated in a centrifuge and spread on a glass slide. When the smear is dry it is ready for examination.

Probably the most convenient way of collecting the sediment is by means of the Stewart-Slack tubes, although it can be done quite readily in the tubes of a centrifuge such as are ordinarily used for collecting urinary sediments. In this case from 5 to 15 c.c. of the milk can be used, and this might be desirable in separated milk and cream. The 2 c.c. which the Stewart-Slack tubes hold, however, will ordinarily be found quite sufficient with whole milk.

The sediment is, perhaps, best spread on the glass slide by means of a glass spreader such as is frequently used in making blood smears. It is also quite possible to make the smear in the same way that is suggested by Slack for the direct enumeration of bacteria, that is, by means of rubbing the stopper over a definite area, such as 4 or 6 square centimeters.

THE STAIN

The methylene blue stain referred to above is made by adding about 7 gm. of Gruebler's dry dye to 100 c.c. of distilled water, allowing it to stand several hours with frequent shaking, and then filtering. Similar results can be obtained with saturated, aqueous solutions of safranin O soluble in water and Coget's Thionine and other stains, but so far the methylene blue has proved most satisfactory.

INTERPRETATION OF RESULTS

When the stains prepared by the method described above are examined under the microscope, the following pictures are seen:

1. *Raw Milk.*—The entire microscopic field is stained a light blue, the depth of the stain depending on the thickness of the film. In this blue background appear numerous clear areas, when viewed either with a low power (100 ×) or under an oil immersion objective. The smaller ones of these are fat globules, and the larger ones may be large fat globules, or clusters of the same, or more likely they are the leukocytes of the milk. These smears of the raw milk are quite uniformly stained, and the background is quite constantly more highly colored than any of the smaller objects in the fields. Under the high powers, oil immersion objective, the leukocytes are practically all colorless; but with some experience it is not difficult to learn to recognize them, and then it will be noted that the cells of the polymorphonuclear variety are irregular in outline and about 12 microns in diameter. The nuclear material, if differentiated at all, is not well defined. The mononuclear cells are always well stained, and are not considered in this test, and all descriptions of leukocytes apply only to the polymorphonuclear ones.

2. *Heated Milk.*—Smears made from heated milk do not have the background as deeply stained as the smears from raw milk, but in thick portions may be quite blue. The leukocytes are always more deeply stained than the background, and under the low powers of the microscope may be readily seen as dark blue areas in a lighter blue field. The background immediately surrounding these leukocytes frequently takes the stain deeply and shades off into the color of the background, thus forming a halo about the leukocytes. Under the oil immersion lens the leukocytes are readily visible; they are less irregular in outline than are those in the raw milk, that is, they are rounded up, or shrunken, and are only about 7 microns in diameter. The nuclei are distinctly stained. The amount of shrinking and the depth of stain vary somewhat with the degree of heat applied.

Even a cursory examination of the two smears shows a distinct and readily recognized difference between the smear from the heated milk and that from the raw milk.

The effect of heat on the leukocytes, so far as this test is concerned, is twofold. It alters the shape and size of the cells, and changes their staining reactions. The shape of the cell is probably gradually changed as the degree of heat increases, and the shrinking begins to appear at a lower temperature than that used for pasteurization; but the fixing of the nuclear material, which makes possible the absorption of the stain, seems to take place definitely at practically the same temperature as that fixed on as suitable for the pasteurization of milk, namely, at from 60 to 63 C. (140 to 145.4 F.).

REQUIREMENTS OF PASTEURIZED MILK

Properly pasteurized milks then, when examined by this method, should show the polymorphonuclear leukocytes more deeply stained than the background, rounded up and less than half the usual size of such cells, and should especially show the nuclei definitely stained. Controls of raw milk should probably always be run.

RESULTS OF USE

This method has been tested on many samples experimentally pasteurized in the laboratory and on several samples of commercially pasteurized milks. In a considerable number of cases, myself and two others, one with considerable practice and the other with practically none, have found it readily possible to differentiate the properly pasteurized from the raw samples. I feel sure that any one who will take the necessary time to familiarize himself with the test will be able to separate milk heated to 60 C. and above from raw milk, with the same ease and certainty that the bacteriologist now makes a laboratory diagnosis of diphtheria or rabies, and in little more time than is required to stain and examine for tubercle bacilli in sputum.

Part of the work done on this test was performed while I was working in the Laboratories of Preventive Medicine and Hygiene at the Harvard Medical School, and I desire to thank Dr. M. J. Rosenau for many courtesies extended. I also wish to thank my assistant, Miss V. A. Armstrong, for constant help.

THE VACUUM TUBE OF KEIDEL, AS APPLIED TO BLOOD-CULTURE WORK*

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While blood-culture has long occupied an important position as a diagnostic method in all modern hospital laboratories, it has almost completely failed to popularize itself among general practitioners. The reasons for this are self evident. Very few general practitioners probably have private laboratory facilities at their disposal which would enable them to carry to the sick-bed all the paraphernalia which blood-culture, as hitherto practiced, demands. Moreover, a single negative result is rarely of value, while repeated examinations would frequently not be tolerated by the patient, to whom a vein puncture with a large needle is by no means an indifferent procedure. To meet these objections to an otherwise most valuable method of investigation, it occurred to us that the entire procedure might be very much simplified by the use of large vacuum tubes analogous to those which were introduced by Keidel for the collection of blood for Wassermann work, *the culture medium being placed in the tubes.* Preliminary experiments which Dr. G. H. White carried out during the fall of 1912 and the following winter showed conclusively that the method is thoroughly practical and trustworthy, and since then all blood-culture work both at the laboratory of the College of Physicians and Surgeons and in Dr. Simon's private laboratory have been conducted on this basis.

Tube for blood-culture work; one quarter natural size: 1, open tube; 2, parts assembled; *a*, point at which the tube is sealed after exhaustion.

The tubes which we are now using are manufactured by the Steele Glass Company of Philadelphia. They are illustrated in the accompanying diagram. Their capacity is approximately 50 c.c. From 15 to 25 c.c. of glucose bouillon containing 1.5 per cent. of sodium citrate (to prevent coagulation) are placed in each tube. This is most conveniently accomplished by drawing out the neck at the mark *a* to a comparatively fine caliber, without seriously weakening the glass, when each tube is connected with a suction pump and a vacuum established. The connecting rubber tube which leads to the pump is clamped, slipped off and plunged into the culture medium, when this is again connected with the suction pump, the desired degree of vacuum established and the neck sealed at *a* where it was previously drawn out. The tubes are then provided with a stout rubber cuff, armed with a No. 24 needle which, in turn, is supplied with a stylet. Thin tubing is unsuitable, as it will collapse when suction is established. The needle which we use is a trifle larger than that going with the Keidel tube, but still sufficiently small as not to cause any inconvenience to the patient. Needle and cuff are guarded with an outer glass tube, as usual, and the entire apparatus is sterilized—best by heating in the autoclave for five minutes after the pressure has reached 20 pounds. Thus prepared, the tubes may be stored, and are then ready for use at any time.

When a blood-culture is to be made, the patient's arm at the bend of the elbow is cleansed with soap and water, and alcohol and ether in the usual manner; a constricting band is placed around the upper arm, and any prominent vein punctured that may present itself. After this has been done, the sealed end within the rubber cuff is broken off, when approximately 5 c.c. of blood are allowed to enter. The constricting band around the arm is removed as soon as the blood begins to flow. The needle is then quickly withdrawn, the guard tube replaced, and the reassembled outfit carried to the laboratory. If this is at a distance, necessitating the mailing of the tube, the rubber cuff is removed under aseptic precautions, and the broken end of the collecting tube sealed in a Bunsen or alcohol flame. Otherwise this is not necessary and the entire apparatus may be placed in the incubator, as it is.

After twenty-four hours the corpuscles will have settled to the bottom, while the supernatant fluid becomes perfectly clear and remains so, if no growth has occurred. If positive, a turbidity results which develops either within twenty-four hours, or later, and varies in appearance with the character of the organism. Then, and not before, are the contents of the tube examined in the smear, and, if desired, by subcultures, though the latter are not always necessary.

The results which we have obtained with this procedure have been most gratifying. The isolation of all the common organisms which may be found in the blood (including the various types of streptococci and pneumococci) is effected without difficulty, and we feel that blood-culture with this method is now a sufficiently simple matter to be within the reach of any physician who is provided with even very modest laboratory facilities. The inconvenience caused the patient is, moreover, so slight that no objection is likely to be raised to even frequent repetitions of the puncture.

While the procedure, as above described, is one that will usually be adopted for the isolation of aerobic organisms, the same method may be employed if anaerobes are to be cultured. In that event, a vacuum is again established after inoculation of the culture medium, and the tube sealed off as in the beginning. Or, as an extra precaution, the medium may be layered with liquid paraffin before sterilization.

We may mention that we are using corresponding tubes for the collection of blood for various other purposes. For coagulation-time determinations, according to Howell's method, a smaller model is employed, charged with oxalate solution and graduated accordingly. Plain collecting tubes of large caliber are used for the purpose of obtaining blood for the Abderhalden and Fauser reactions, for the preparation of salvarsanized serum, for the collection of antiserums in animals, etc.

The underlying principle in all, of course, is the vacuum method of Keidel, to whom we cheerfully give all credit for its extension to other purposes also than the collection of blood for the Wassermann reaction.

* From the Department of Clinical Pathology and Experimental Medicine of the College of Physicians and Surgeons of Baltimore.

Observation and Theory.—It is not true that observations compel any one theory. In fact, as Poincaré has shown, there is an infinite number of explanations of any finite set of facts. From among this enormous totality we must select the explanation which is most satisfying for us from considerations of convenience or from the demands of the esthetic sense. This is actually what we always do. It should be done consciously.—R. D. Carmichael, *Science.*

AN IMPROVED ETHER MASK

WILLIAM L. WOLFSON, M.D., BROOKLYN
Assistant Visiting Gynecologist, Jewish Hospital

Innumerable methods for the oral administration of ether as an anesthetic have been devised. The simplest is a piece of cloth, of varied thickness, or texture, placed over the mouth and nostrils; the most complicated are those apparatus of complex and expensive manufacture, with special heaters

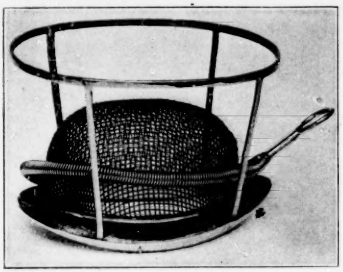

Fig. 1.—Mask, as it appears without the gauze for ether and canton flannel bag.

for the warming of ether vapor, intrathoracic pressure regulators, etc. The latter appliances have no value to the ordinary practitioner, whose anesthetic needs are confined to his office or his patient's home, but they have a definite, important and necessary use at hospitals for prolonged, difficult or special operations.

Of the simple devices for administering ether in common use, the Ochsner-Mayo, Yankauer and Ferguson masks have deservedly attained the greatest popularity. With all of these masks, ether is given by the open drop method.

There is little doubt that of these the Ferguson type of mask is the most efficient. Made of wire, it has an oval base to fit around the nose and mouth; arching across this base are several wire supports for gauze, on which the ether is poured. The gauze is held in position by another oval wire that presses it firmly against the base. Four wire columns,

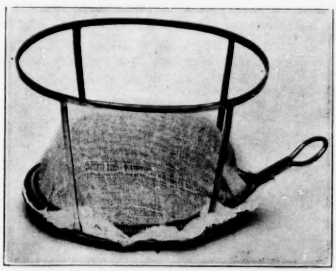

Fig. 2.—Shows the gauze for ether snapped firmly into position.

two on each side, arise from the base of the mask. They are directed upward and outward, and are surmounted on top by a circular wire. A specially made bag of Canton flannel fits around the four columns and the top wire, converting this enclosure into a semiclosed chamber, the opening being above, the size of which may be regulated with a purse string. It is through this opening above that the ether is dropped on the gauze directly below.

The advantages possessed by this mask are: 1. It provides a semiclosed chamber into which ether is permitted to vaporize and become warmed. 2. An appreciable degree of rebreathing takes place. 3. The amount of air accessible to the patient is easily regulated by the purse-string opening.

What merits the Ferguson mask possesses are greatly offset by a number of grave disadvantages. It was assumed that, the oval base being made of flexible wire, the shape of the mask could be bent to each individual face. After a few such attempts, I have been disappointed to find the mask greatly distorted, the gauze-locking device uncertain and the mask entirely unmanageable.

To eliminate a number of grave disadvantages that the Ferguson mask possesses, and at the same time to combine its excellent features with those of the Yankauer mask, I devised a new mask, made up for me by Sands & Levy of Buffalo.

As a base I have used the rigid Yankauer mask. The shape of this mask lends itself to almost every face. Rarely is it necessary to wrap a towel about it, to withhold an excessive amount of air accessible to the patient. Its oval spiral spring arrangement for the rapid and firm fixation of gauze in place is excellent (Fig. 1). On the sides of this mask are erected four columns, two on either side. These columns are made up of spring band German silver, 3/8 inch wide. They are surmounted on top by a circular band of the same material (Fig. 2). This insures an air chamber of permanency and stability.

As completed, with the Canton-bag covering (Fig. 3), this mask affords every advantage of both the Ferguson and

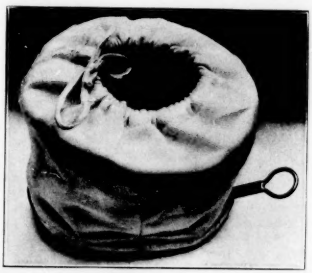

Fig. 3.—Mask as completed, with the canton flannel bag surrounding it; opening above regulated by a purse string.

Yankauer masks, and omits a number of their serious disadvantages. Its advantages are:

1. Durability, rigidity and permanent shape. 2. The easy, precise and firm fixation of gauze. 3. Possession of an air chamber for the vaporization of ether. 4. The regulation of air accessible to the patient.

I am anxious to express my indebtedness to Dr. I. D. Kruskal, visiting anesthetist to the Jewish Hospital, under whose direction this mask has been in use for more than a year.

3003 Clarendon Road.

AN ELECTRIC HEATER FOR STAINING THE TUBERCLE BACILLUS

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Chemist and Bacteriologist, Health Department Laboratory

The method of staining the tubercle bacillus by holding the slide over a small flame to steam is both slow and tedious, especially when a number of slides are to be stained. To overcome this, I have devised a simple electric heater which can be made in any laboratory, and whereby a number of slides can be stained at the same time.

The heater consists essentially of a heating unit mounted on a galvanized iron test-tube support (E. & A. No. 6694).

To the under part of the wire frame is fastened a thin piece of sheet iron to secure even distribution of heat and to prevent liquids being spilled on the heating element. About a quarter inch below this is the heating unit. This was made by wrapping about 30 feet of Nichrome ribbon wire 1/32 inch wide around a rectangular sheet of mica of nearly the same dimensions as the support. This is insulated on both top and bottom by similar sheets of mica and the whole mounted on a heavy piece of asbestos board which is fastened to the corners of the support. The wire terminals lead to binding posts which are fastened to the asbestos board. The resistance of the heating circuit is about 80 ohms which requires, on a 110 volt direct current circuit, about 1.4 amperes. This will produce enough heat to steam the slides without danger of burning should the stain evaporate. About ten slides can be stained at once.

Nichrome wire is well adapted for use in heating units on account of its high specific resistance, non-corrosiveness and high melting point. It can be bought in either wire or ribbon, the latter being the more convenient for making a heating unit. The wire is made in various widths and thicknesses.

The heater here described has been used in this laboratory for some time with excellent satisfaction.

A SIMPLE APPARATUS FOR THE ADMINISTRATION OF CHLOROFORM AND ETHER BY THE VAPOR METHOD

O. M. LAYTON, M.D., FOND DU LAC, WIS.

The administration of ether and chloroform by the vapor method has certain advantages over the older methods, of which the most obvious are lessened danger of overdose, greater freedom from bronchial irritations, and its ready adaptability to throat work.

Junker's chloroform inhaler has been on the market for a number of years, and can be bought for about nine dollars, while there are a number of different apparatus for the administration of ether vapor to be had at prices varying from twelve to about two hundred dollars.

I have recently devised a simple and compact little apparatus for the administration of both drugs by the vapor method.

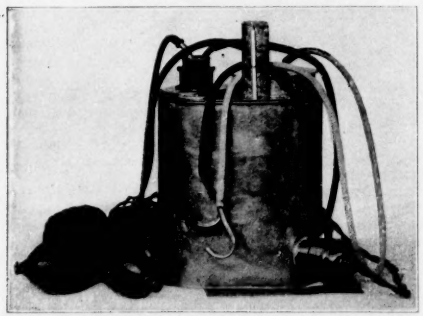

Fig. 1.—Apparatus for administration of chloroform and ether anesthesia.

This apparatus has proved very satisfactory in my hands, and can be constructed by any tinsmith at a cost which need not exceed five dollars, including the cost of bulbs and tubing.

The apparatus consists of an oval tin container 7 inches in length by 7½ in height; a removable top, to the under side of which are soldered two tin tubes 5 inches in length and 2½ and 3½ inches in diameter, perforated at the bottom and open at the top for the reception of the 4 and 8 ounce bottles. A circular tin cover with a central opening passes over the necks of the bottles, dropping to the shoulders of these.

The base for an electric light bulb is soldered in the side of the apparatus near the bottom and fitted with a 15 watt bulb. An ordinary thermometer is secured between the bottle holders.

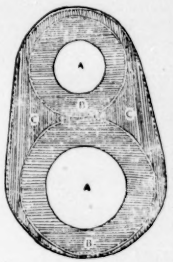

Fig. 2.—Top of apparatus: *A*, *A*, openings which pass over the necks of the bottles; *B*, *B*, circular tin cover; *C*, *C*, removable tin top.

The tubes may be of 3/16 inch brass or glass, and are bent at convenient angles. The inlet tubes to which the rubber bulbs are attached extend to the bottom of the bottles; the outlet tubes just through the corks.

The curved tubes at the end of the rubber delivery tubes are hooked inside of the dome of an ordinary wire inhaler which has been covered with a dozen layers of surgical gauze. In throat work, whichever tube is used may be carried inside the angle of the mouth, or the rubber tubing connected to any of the mouth gags constructed for use with the vapor method.

When in use, the temperature of the interior of the apparatus should be maintained at 85 F.; this may be accomplished with warm water if electricity is not available.

Compression of the bulbs should be timed so as to deliver the vapor to the patient at the beginning of each inspiration.

The strength of ether vapor as delivered I have found to be about right for the average patient for maintenance of satisfactory anesthesia. If for any reason one does not wish to anesthetize his patient with chloroform, he may use the ether drop method and change to the ether vapor method as soon as the patient is properly anesthetized.

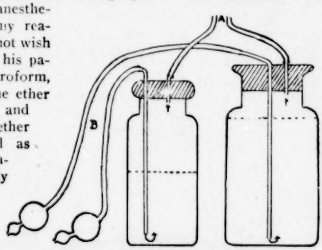

Fig. 3.—Bottles for ether and chloroform: *A*, delivery tubes; *B*, cautery bulbs and tubes.

I have now tried this out in about 300 anesthesias within the past year, the work having been done in St. Agnes Hospital, in the surgical service of J. P. Connell, M.D., to whom I am indebted for the opportunity, as well as for many kindly suggestions.

Sleeping Sickness in Portuguese West Africa.—Consul-General Henry A. McBride, stationed at Boma, Belgian Kongo, West Africa, has made a trip through Angola, a Portuguese colony in West Africa, twice as large as the state of California. He says that in the district of Loanda and east as far as the Kwango River there are many localities in which sleeping sickness is prevalent. The principal region is along the Kuanza River where the tsetse fly abounds. In this district the sleeping sickness has almost caused the disappearance of a population once numerous and flourishing. The mortality from the disease so seriously interfered with the supply of labor on farms and plantations that in 1902 the Portuguese government sent a commission of the most eminent bacteriologists in Portugal to investigate it, with the result that measures were adopted against it, and its prevalence is far less than it was ten years ago. It is proposed to build a large sleeping sickness hospital at Ambaca. Consul McBride also says that several severe epidemics of smallpox have occurred in various parts of the colony.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 742)

IX

B. DEPRESSANTS: 6. HYDROCARBON NARCOTICS

The terms "soporific," "hypnotic" and "narcotic" are sometimes used without a clear understanding of their meaning. "Soporific" (from the Latin *sopor*, sleep) and "hypnotic" (from the Greek ὕπνος, sleep) may be considered as having an identical significance; they are applied to drugs that induce sleep closely simulating natural sleep. The term "narcotic," from νάρκη, stupor) is applied to those drugs which in moderate doses produce a more profound depression of the higher centers than occurs in natural sleep.

The following will serve to distinguish between them: Moderate doses of hydrated chloral induce sleep, during which sudden noises are perceived and their character recognized, while the patient is awakened to a normal condition, showing that the centers concerned with the perception of sound are almost as active as normally. Larger doses of hydrated chloral induce narcosis, during which the loudest noises do not awaken the patient nor can evidences of consciousness be elicited by any ordinary means, such as shaking or pinching, the perception of pain being abolished, of course.

The stage of hypnosis passes gradually into that of narcosis, and while there is no sharp distinction between them, we use the terms "soporific" and "hypnotic" for such drugs or doses as induce the lighter stage of sleep, and "narcotic" for those drugs or doses which abolish the perception of pain and induce profound depression of the higher centers.

The hydrocarbon narcotics may be subdivided for convenience of consideration into the following groups: alcohol, chloroform and ether; hydrated chloral and other hypnotics. They have very similar actions in general, differing mainly in the rapidity with which their actions are induced and their duration; hence it will be convenient to discuss the subject of narcosis briefly, even though many of the drugs of this group are never actually used therapeutically for their narcotic effects.

Many theories have been advanced to explain the action of narcotics, and while none of these is satisfactory, there is one which has gained acceptance more widely than the others. Hans Meyer and Overton advanced theories independently which are similar in many respects, and which are usually spoken of as the theory of Meyer and Overton. They believe that the narcotic activity of different agents is dependent on their relative solubility in lipoids (lecithin-albumin compounds) and in water or serum, and that this activity does not within wide limits depend on the solubility in water or serum alone.

Meyer determined the relative solubilities of various agents in water and fats, or lipoids, designating this relationship as the "coefficient of distribution." He found that those having a relatively great solubility in lipoids are more actively narcotic than those having a relatively greater solubility in water. He believes that chemically indifferent substances enter the cells of the central nervous system by reason of their solubility in the cell envelope, and that their narcotic activity then depends on their possessing molecular groups which affect the internal relations of cell compounds.

The chemically indifferent narcotic compounds exert their actions on all forms of cells which they penetrate, but not all substances having a relatively high degree of solubility in lipoids are actively narcotic, benzene, for example, being nearly devoid of this action.

Baglioni has suggested that anesthesia results from the withdrawal of oxygen from certain compounds in the central nervous system, and it is well known that narcosis results when the inspired air is deprived of oxygen. Other theories do not require mention here.

ALCOHOL—(A)

There are two diametrically opposed theories which are frequently urged to account for the earlier actions of alcohol on the central nervous system. Binz believed that alcohol stimulates the central nervous system, while Schmiedeberg holds that the action is wholly depressant and that such increased functioning as follows the use of alcohol results from the abolition of inhibition on the centers which normally exercise control over those which then show apparent stimulation.

The weight of opinion is in favor of the view that alcohol stimulates certain parts of the nervous system, the stimulation being brief, usually lasting about half an hour. Jacobi found that the motor areas of the cortex became hyperexcitable and that smaller differences in weight could be appreciated after alcohol, while even the largest doses did not cause paralysis of the motor areas.

There is no clear evidence that alcohol increases the capacity for performing the highest type of mental work, such as clear judgment and the exercise of sound logic require, but the evidence is overwhelming that the capacity for such effort is distinctly lessened, though rapid association of ideas and such feats as rhyming may be facilitated. Such stimulation as alcohol induces is soon followed by depression. The effects of the stage of stimulation are so well known that they do not require detailed discussion here. The flushed face, the flashing eye, the ready wit, the good humor are sufficiently familiar to all.

Large amounts of alcohol lead to narcosis, which will be discussed when chloroform and ether are considered.

The respiration is greatly accelerated during the stage of excitement, just as it is during excitement from other causes, but the therapeutic use of alcohol results in a slightly increased respiration even during sleep. This is frequently attributed to a direct action on the centers in the medulla, but it is not known whether the action is direct or a reflex from the peripheral irritation. At any rate, respiratory depression does not occur unless the dose is large.

The vessels of the skin dilate after moderate doses of alcohol, and this dilatation is sometimes accompanied by a constriction of the splanchnic vessels which is sufficient to increase the blood-pressure slightly; but the changes in blood-pressure are only slight unless large doses have been administered, in which case there is a marked vasodilatation and fall in

* This is the ninth of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

the pressure. It is not profitable to enter into a discussion here of the seat of this action, because the question is still unsettled.

The vagus center and that concerned with the emesis are probably not affected directly.

The heart-rate is not changed after therapeutic doses of alcohol, though the contraction may be slightly stronger, and it has been suggested that this is due to the supplying of energy directly by the alcohol. This, however, does not seem to be a satisfactory explanation. The behavior of the blood-pressure is inconstant, and it is probably of less importance than is the distribution of the blood.

Alcohol acts on the muscles directly and indirectly through the central nervous system. The direct actions are exerted in opposite directions. The immediate effect on muscular effort is to diminish the efficiency of the individual contractions, and the remote, to delay the onset of fatigue. Under its influence the muscle contracts less perfectly from the start but continues at this slightly lower level for a longer time, with the result that more work is performed before it becomes exhausted. It must be understood that this action is available only occasionally, for the habitual use of alcohol interferes with muscular efficiency, as it does with nearly all of the functions of the body.

The reason for the delay in the onset of fatigue when alcohol is applied to the muscle directly is that the alcohol is oxidized to carbon dioxid and water, which are immediately removed, while the oxidation furnishes muscular energy, and the fatigue products accumulate more slowly than normally.

This action is probably negligible when alcohol is taken by the mouth, and the central action is then responsible for the increased capacity for muscular effort. It does this by facilitating the excitation of the motor areas and by lessening the perception of fatigue. Alcohol may therefore prove useful in an emergency, when it becomes necessary to continue physical exertion beyond the time when excessive fatigue would demand rest. The factors involved in increased voluntary muscular effort would not affect the action of the heart, and it is difficult to explain its improving the cardiac action on the basis of any direct action, or of the lessened perception of fatigue; hence we must suppose that any improvement in the condition of the heart which it induces must be secondary to circulatory changes.

The association of parental alcoholism and degeneration or pathologic conditions in the offspring have long been recognized. It is known that epilepsy is more frequent in the offspring of alcoholics than of abstainers; a recent report, moreover, calls attention to the fact that alcoholic intoxication in the father at the time of impregnation may result in an epileptic child even when there is but the single indulgence in alcohol.

The high tax on ethyl alcohol has led to the abuse of methyl alcohol, which should not be used internally or externally on the body. A great number of fatal cases of poisoning or blindness have resulted from its use.

It is often claimed by the manufacturers of wood alcohol that blindness following its use is due to impurities present, but the purest wood alcohol obtainable causes blindness, and this action is explained by the retention of the methyl alcohol in the central nervous system and its slow oxidation to formic acid, which acts on the retina, causing degeneration.

Alcohol is absorbed rapidly from the gastro-intestinal canal and it also favors the absorption of other substances, probably through its mildly irritant action on the mucous membrane.

Alcohol is eliminated fairly rapidly when small amounts are taken, the habitual user burning it faster than the non-habituated. It has been found that only about 2 per cent. of a dose of 70 gm. (2½ ounces) escaped oxidation when taken during rest, in which extremely small amounts escaped from the lungs. Ten times as much may escape oxidation and be eliminated by the lungs when alcohol is taken during exercise.

Gastric digestion is not materially affected by moderate amounts of beer and wines of low alcoholic content, and they may even promote digestion; but brandy and whisky, containing about 50 per cent. of alcohol, interrupt digestion when they are taken in sufficient amount, and digestion is not resumed until the concentration of the alcohol is reduced sufficiently through absorption or dilution with the gastric contents.

Alcohol is antiseptic, absolute alcohol being much less active than that of 70 per cent. strength. This is probably explained by the fact that the stronger alcohol dehydrates the bacteria, increasing their resistance.

The continued moderate use of beer and other beverages of low alcoholic content commonly results in a gain of weight, due mainly to an increase in fat. Alcohol is also capable of sparing protein in those who have become habituated to its use, but not in those who use it only occasionally, or for a short time.

The dilatation of the vessels of the skin causes a sensation of warmth, because the increased blood-supply increases its temperature. This leads to a greater loss of heat than normally, and the body temperature may actually fall, even while one feels warmer, because the increased heat loss is not compensated for by increased heat formation. For this reason, the practice of taking alcohol before going out in extremely cold weather is dangerous, and severe exposure has often proved fatal under such circumstances. It is more rational to take alcohol when one returns to a warm room after having suffered from exposure to the cold, for then sensation of warmth acts as a stimulant, while the warmth of the room prevents further loss of heat.

The treatment of chronic alcoholism cannot be discussed here in detail. Attention was recently called to the often-observed fact that those who are fond of alcohol are not usually fond of sugar, while those who like sugar care little for alcohol; the theory was advanced that chronic alcoholism results from a disturbance of physicochemical balance, which may be corrected by diminishing the supply of alcohol and increasing that of sugar in the diet.

Common experience shows that individuals differ widely in their response to alcohol. The average fatal dose for a non-habituated adult is probably the equivalent of about 100 to 150 c.c. (3 to 5 fluidounces) when taken in fairly concentrated form, such as brandy or whisky. The more dilute forms, such as wine and beer, are not correspondingly active, because excretion then more nearly keeps pace with absorption. On the other hand, the more concentrated

alcoholic beverages are more irritant to the stomach, and cause protective emesis more commonly than the weaker ones.

The first stage of alcoholism may be disregarded here, as it does not usually call for therapeutic treatment and is of minor toxicologic interest, but severe acute alcoholism, while rarely fatal, is extremely common and often demands treatment.

The more common type of acute alcoholism seen in habitués is different in several essentials from that seen in the non-habituated, and will be discussed first.

The common drunkard usually falls asleep under the influence of alcohol and will so remain if undisturbed, but when awakened he is prone to show excitement and extreme pugnacity that is difficult to control. The practice prevailing in some of the metropolitan hospitals in dealing with such patients is as follows: The stomach is washed, not so much to remove alcohol, which has usually been absorbed, as to remove undigested food and relieve nausea and vomiting, and to secure the retention of medicine. A dose of magnesium sulphate (half a pint or more of 10 per cent. solution) is then passed through the tube and allowed to remain in the stomach with the object of causing active purgation. This is followed by the administration of large doses of paraldehyd—three or four teaspoonfuls every half hour until excitement is controlled. This may seem contra-indicated in alcoholic intoxication, in view of the similarity of action of the two, but it is said to act extremely well in controlling the delirium of inebriates. Of course it is not used when deep narcosis results from the alcohol, which is rare in these cases.

When extremely muscular inebriates cannot be controlled sufficiently during the maniacal stage to permit of washing the stomach, a hypodermic injection of apomorphin, 0.008 gm. (⅛ grain), suffices to cause emesis and promptly reduce the patient to docility.

Severe alcoholic intoxication in the non-habituated usually causes more profound depression, which may succeed the first stage gradually, or may develop suddenly, causing death within a few minutes. During the narcotic stage there is active dilatation of the vessels in the skin, the face becoming scarlet, but soon there is a great fall of blood-pressure, due to the dilatation of the splanchnic vessels, and the skin of the trunk and extremities becomes cool and clammy, the respiration becomes stertorous, the pulse feeble. Emesis may occur at any time before narcosis develops, owing to the gastric irritation. When profound narcosis begins emesis stops, but it may recur as the narcosis passes away. The urine and feces are often evacuated involuntarily; with the failure of respiration the skin becomes cyanotic, as in asphyxia from any cause. The odor of alcohol on the breath is characteristic.

Chronic inebriates may of course present the stage of profound narcosis when the amount of alcohol taken is excessive, but this is unusual. The patient generally recovers after sleeping a variable length of time, but Kobert states that recovery seldom takes place after coma lasting more than thirteen hours. Death occurs rarely from rapid failure of the respiratory center, or from apoplexy; edema of the lungs may result in death after some days. Cardiac failure or apoplexy may cause sudden death after the patient is apparently on the road to recovery, or this may result after some days from pneumonia or encephalitis. The latter is of interest in view of the suggestion that the headache which commonly follows a drinking bout may be due to pressure of cerebrospinal fluid on the brain due to increased secretion resulting from alcohol.

When a patient is seen after taking a dangerous dose of alcohol, the stomach should be emptied by the stomach-tube as promptly as possible, but, as previously suggested, this does not serve to remove much of the alcohol unless it is done immediately after the administration of the alcohol. If a dangerous amount of alcohol has been swallowed, the further treatment must be largely symptomatic—cold applications to the head, and warm applications to other parts of the body to prevent cooling. It has been suggested that venesection might be considered, but that would seem to be a council of desperation. It would seem to be more logical to inject as much as a liter (1 quart) of 2 per cent. solution of sodium sulphate intravenously in desperate cases, in order to dilute the alcohol which continues to circulate in the blood, and possibly to hasten elimination, though little benefit is to be expected probably.

Caffein is antagonistic to moderate amounts of alcohol, but its value in excessive depression is problematic. It should be administered intramuscularly (not intravenously) with caution and stopped if it fails to cause prompt, even though slight, improvement. Artificial respiration will be required if respiratory failure threatens.

Should the more threatening symptoms subside, the physician will be called on to treat the gastric disturbances and the headache which follow the narcotic stage. These demand the usual gastric sedatives, and caffein and potassium bromid for the headaches.

The following may be found of advantage in such cases:

Bismuth subnitrate.....10 gm. or 2½ drams.
Make five powders and give one every three hours until all are taken.

The addition of an alkali is preferred by some and may be directed as follows:

Bismuth subnitrate.....10 gm. or 2½ drams.
Sodium bicarbonate..... 5 gm. or 1¼ drams.
Mix and divide into five powders. Give one three times a day.

For the more aggravated case of alcoholic gastritis a moderate dose of cocain may be found advantageous.

Cocain hydrochlorid.....	0.05 gm. or 1	grain
Bismuth subnitrate.....	10.00 gm. or 2½	drams
Mucilage of acacia.....	20.00 c.c. or 5	fluidrams
Syrup	20.00 c.c. or 5	fluidrams
Water to make.....	100.00 c.c. or 3	fluidounces

Mix and direct that one tablespoonful be given and the dose repeated in two hours if necessary.

Caffein may be administered with the bismuth or preferably separately in the form of capsules either as caffein, citrated caffein, or caffein sodiosalicylate, 0.3 gm. (5 grains) in each capsule.

Potassium or sodium bromid as a sedative is best administered in the form of simple aqueous solution, 2 gm. or 30 grains in about 20 c.c. of water. The bromids are usually borne best when administered with simple carbonated water.

THERAPEUTIC USES

Few drugs have been used more extensively than alcohol, and few continue to be the subject of more heated debate. Cabot remarked that there are two

camps opposed to each other concerning the actions of alcohol. In the one, those who believe alcohol to be useful in therapeutics are unable to give more than vague impressions that patients improve with its use, or to state wherein the improvement is shown. On the other hand, the opponents of the use of alcohol usually cite old experiments on animals in which enormous amounts were used, or the results obtained with soldiers, typesetters and others who were undergoing feats of endurance. Cabot found the action of alcohol to be practically nil with respect to the blood-pressure in 1,105 measurements on forty-one patients suffering with typhoid fever; nor could he observe any constant effect after therapeutic doses of alcohol with respect to temperature, pulse-rate, respiration rate, appetite, sleep, delirium or renal or cutaneous secretion in 2,160 observations on 309 patients in a variety of conditions. Cabot does not deny, however, that alcohol may have well-defined uses as a vasodilator and hypnotic.

One reason for the diversity of opinion concerning the therapeutic value of alcohol is that it is often used for its psychic effects, to buoy up the spirits of the patient and engender hopefulness and courage—conditions which physicians impart to their patients in such variable degrees by their manner and self-confidence.

It is obvious that alcohol effects changes in the distribution of the blood. In order to do this it must increase the blood-supply to some regions of the body and diminish that to others, and it is hardly conceivable that such changes should not prove beneficial in some cases and harmful in others. The selection of those cases in which the changes will be desirable, while avoiding the use of alcohol in those in which it will prove deleterious, will tax the knowledge, experience and patience of the practitioner.

It is often stated that alcohol improves the circulation in shock. One eminent pharmacologist calls attention to the dilatation of the vessels of the skin and explains the improvement sometimes seen after its use when the heart is beating feebly, as due to the lessened resistance to the contraction of the heart which this dilatation affords, thereby permitting recuperation. Another equally eminent authority cites this dilatation of the vessels of the skin as evidence that the splanchnic vessels are simultaneously constricted, according to the usual physiologic rule of compensating action between the peripheral and splanchnic vessels, and states that the improvement in the heart results from the increased blood-pressure, which of course increases the resistance against which the heart must contract, but which also affords a better blood-supply to the heart itself.

Alcohol may cause increased resistance at one time and decreased resistance at another, and while it is impossible to foresee which will follow in a given case, improvement in the condition of the heart may follow a rise of pressure when this was previously low, or a fall in pressure provided it was not previously too low.

When the heart is suffering with the effort to contract against high aortic resistance, the effect of the changes in circulation induced by the administration of alcohol will depend on the relative changes in the coronary and in the general circulation. If the blood-supply to the heart is increased in greater proportion than the amount of extra work thrown on the heart by a rise in the blood-pressure, the increased nutrition of the heart will cause an improvement in its capacity for meeting the added resistance, and its condition will improve; if, on the other hand, the rise of blood-pressure imposes an additional amount of work on the heart out of proportion to the increase in the coronary circulation, then the heart will suffer further injury. Since it is often impossible to foresee the direction which the change in circulation will take, it is better to use a small dose of alcohol and increase this cautiously if careful study of the circulation shows improvement.

Cardiac failure—not simply the actual stoppage of the heart, but the failure to maintain an adequate circulation—is often dependent in part on faulty respiration, and the action of alcohol in improving the respiration may react on the circulation and institute a cycle of improvement. Any improvement in the respiration which alcohol induces is usually little more than incidental, and we have other and better stimulants for the respiratory center.

It is generally admitted that alcohol is a food, but its value as a food is the subject of much uncertainty. It is not an ideal food, and even under the most favorable conditions it is utilized at the expense of injury to the organism. It must therefore be decided in any case whether the possible good will probably outweigh the harm.

Alcohol in the form of wine affords a pleasant hypnotic for occasional use, but the well-known tendency to give rise to the habit forbids the routine use of this beverage.

Alcohol is often used for bathing the skin in fever, and for hardening the skin to prevent the formation of bedsores.

(To be continued)

Therapeutics

PREVENTION IS GREATER THAN CURE

(Continued from page 743)

XXII

MEASLES

Measles is probably the most frequent of all infectious diseases, and as many as 25,000 cases have occurred in the city of New York in one year. No age is immune, although infants under 6 months are rarely attacked. Though measles can recur in rare instances, it generally confers immunity for life. That it is considered such a simple, common disease is probably the cause of the large number of deaths from neglect. It is estimated that 12,000 deaths a year occur in the United States from this disease, and the number might be much greater if some bronchial and lobar pneumonias were properly recorded as directly followed by measles. The greatest number of deaths occur in young children. While occasionally a death may occur from the intensity of the disease, generally death is caused by complications in the lungs, abdomen or ear. The complication in the ear is middle-ear inflammation with, at times, an extension to the mastoid. In the lungs the condition may be bronchial pneumonia or pneumonia; or the bronchial glands, which are probably always inflamed in measles, may become permanently enlarged. If tuberculous glands are present, general or pulmonary tuberculosis, if not considered a complication, is fre-

quently caused by measles. The glands in the intestines may become inflamed and cause serious trouble. Inflammation of the cervical glands occurs not infrequently. Nephritis is rare. Hemorrhagic skin eruptions occasionally occur. The urine of patients suffering with measles has been shown to be toxic to guinea-pigs; therefore the toxins of this disease are circulating in the blood and pass into the urine.[1]

In civilized countries the mortality, though varying somewhat in different epidemics, is always greater where children are crowded into dark, damp tenements, and is often greater in institutions, probably from the fact that physical defects are more or less likely to be present in institutional children, or at least there is often damaged heredity. In civilized communities there has been gradually handed down more or less immunity to malignant attacks of this disease, and it has been observed that when measles first reaches uncivilized communities in which measles has not before been rampant, the death rate is exceedingly great.

Statistics show that the largest number of cases occur in the spring or late fall, and that the sexes are about equally attacked.

Anderson and Goldberger[2] have successfully caused measles in monkeys by using the blood of a patient with measles. They also showed that the nose and throat secretions may infect the monkey, but that positive results could be obtained from these secretions only when they were collected during the period of eruption. While they do not wish their deductions to be considered final, they are pretty well convinced that infection from nose and throat secretions disappears with the approach of convalescence. They did not find that the desquamating epithelium from the skin lesions carried the virus of measles.

Lucas[3] quotes Hecker[4] as finding that the virus that will infect monkeys is in the blood stream of patients with measles twenty-four hours before the appearance of Koplik's spots, and that the virus remains in the blood and can infect monkeys at least thirty-six hours after the appearance of the skin eruption. This emphasizes what has long been recognized, that the greatest infectivity of measles is during the very earliest stages, and generally before the diagnosis has been made.

Goldberger and Anderson[5] have shown that the virus of measles may pass through a Berkefeld filter, may resist desiccation for at least twenty-four hours, becomes non-infective after being subjected for fifteen minutes to a temperature of 55 C. (131 F.), and will resist freezing for at least twenty-four hours. With these scientific facts it may readily be seen why, clinically, measles is the most contagious, next to small-pox, of all diseases with which we are acquainted, and the fact that it is most contagious almost before the diagnosis can be made renders its prevention very difficult.

EARLY SYMPTOMS

It is essential, if possible, to make a diagnosis of measles before the stage of eruption. After a varying period of incubation, averaging perhaps two weeks, the first stage of measles is evidenced by an acute coryza, attended by considerable sneezing. The eyelids become swollen, and the eyes somewhat inflamed. The tonsils are generally enlarged, and the throat congested. The secretions from the nose and throat are at first serous, and later seropurulent. There is almost invariably some fever from the beginning of this first stage, varying in amount, and it is generally the highest during the first and second day of the complete eruption which, on the average, appears on the fourth day. The usual symptoms of infection are likely to be present, namely, coated tongue, loss of appetite, muscle aches, headache, some lumbar pains, chilliness, and in children sometimes vomiting or diarrhea. With the appearance of these symptoms, measles should always be suspected.

In no attack of acute illness in a child should an examination of the mouth and throat be omitted. A careful examination of the mouth will often show some punctate red spots on the hard palate, and on the mucous membrane of the cheeks will quite generally be noticed Koplik's spots, which are diagnostic. Though early described by other observers, the spots which bear his name were brought to general notice by Koplik in 1896. They most frequently occur on the cheeks near the molar teeth, and at first appear as little darker blotches on the red membrane. Soon in the center of these blotches appears a very small bluish-white speck slightly raised from the surface. These spots never seem to occur on the gums. Although there may be but few of these spots, they are typical and diagnostic of measles. Many times they are not found, but it is probably generally because they have been overlooked, or have been very few in number and minute. These spots may appear two or three days before the eruption on the skin; their diagnostic importance is therefore evident.

One should not be thrown off his guard during the first stage of measles by a sudden dropping of the temperature. This sometimes occurs without any antipyretic, and has not been explained. In other words, the illness seems, apparently, about to cease, and suddenly the temperature again rises, and soon the skin eruption is present.

The blood in measles is more or less characteristic. There is diminution in the number of leukocytes, that is, a leukopenia. Lucas[6] says that early in the infection there is distinct change in the white blood count, and that the greater diminution is in the lymphocytes. He states that a relative diminution of lymphocytes and neutrophilic cells may be noticed a week before any visible symptoms of infection occur, and that the blood will show positive evidence of this disturbance at least forty-eight hours before Koplik spots appear. He also finds a great many disintegrated cells in this blood picture. Lucas[3] also states that different investigators have shown that the eosinophil cells are diminished, and may even disappear entirely from the blood of patients during the eruptive stage of measles.

In pneumonia, in epidemic cerebrospinal meningitis, and in scarlet fever the leukocytes are increased in number. In typhoid fever and in measles there is a diminution of leukocytes, but in these diseases the greatest diminution is in the polymorphonuclear cells, while the lymphocytes may be relatively increased.

1. Aronson and Sommerfeld: Deutsch. med. Wchnschr., 1912, xxxviii, 1733.
2. Anderson, J. F., and Goldberger, Joseph: Recent Advances in Our Knowledge of Measles, Am. Jour. Dis. Child., July, 1912, p. 20.
3. Lucas, W. P.: A Review of Recent Work on Measles, Am. Jour. Dis. Child., December, 1913, p. 412.
4. Hecker: Ztschr. f. Kinderh., May, 1911.
5. Goldberger, Joseph, and Anderson, J. F.: The Nature of the Virus of Measles, THE JOURNAL A. M. A., Sept. 16, 1911, p. 971.
6. Lucas, W. P.: The Value of the Blood Picture in the Early Diagnosis of Measles, Especially in Relation to the Question of Isolation, Am. Jour. Dis. Child., February, 1914, p. 149.

ERUPTION

This is most thoroughly described in all its details by Lucas.[3] The typical eruption of measles is papular, begins from the third to the fifth day (generally on the fourth), and lasts four or five days, the amount varying widely in different cases. It begins on the neck and face, then on the back, and then goes to the shoulders, arms, abdomen and legs. Besides the typical papules, there may be many macules which never reach the papular stage. The spots are generally of a dull reddish color, and somewhat resemble the bites of fleas. They may be irregular in shape and coalesce and form patches. A typical distinction from scarlet fever eruption is that in scarlet fever there is an oval clear space around the mouth. Von Pirquet[7] believes that the eruption of measles depends on the vascularity of the skin, and that the rash appears early and is more intense on the parts of the skin that have a large blood supply, and in parts that are near the large blood-vessels, and he concludes that the rash is the result of a "reaction with the measles organism or virus which takes place in the capillaries of the skin," and may be due to an agglutination of the measles organism by the action of its antibodies.

Prodromal rashes may occur in measles and cause difficulty in diagnosis. There may be an erythema not unlike scarlet fever patches. These eruptions may occur one or more days before the typical eruption of measles. They are generally urticarial in type, and often represent some acute indigestion or food poisoning, or may be due to some drug that has been administered. The diagnosis is made by the catarrhal symptoms, by the blood count, by the Koplik spots, and by the occurrence of the typical eruption of measles.

There is always more or less desquamation after the eruption begins to fade, and the more the eruption, the more the desquamation. It may last for a few days, or may last for one or more weeks. This desquamated epidermis is generally in the form of fine scales.

PREVENTION OF INFECTION OF OTHERS

As stated in the beginning of the discussion of this disease, probably few persons escape an attack of measles. Therefore, up to recent years, before isolation measures were inaugurated, most adults had had measles, and therefore were immune to the disease. With the isolation measures now in vogue, many youth and young adults have never had the disease, and therefore physicians are having more cases of measles to treat in persons who are no longer children.

A large number of cities have now declared that measles is a reportable disease, though placarding of the houses which contain the disease is not general. The isolation required by boards of health varies from fourteen to twenty-one days. A longer period than two weeks seems entirely unnecessary, as it seems probable that infection can be given only in the very early stages and apparently not longer than the stage of eruption, even by the secretions of the nose and throat. The desquamating skin does not carry contagium. Therefore, a long quarantine would seem an unnecessary hardship.

A schoolchild being reported as having measles should cause the other children in the family and tenement to be studied as to whether or not they have had the disease, and as to how close contact they have had with the infected child. It would seem unnecessary to keep children out of school who have already had this disease, since it has not been shown that there are carriers of this germ. The children who sit in school in the immediate vicinity of the infected child should also be studied, as it is positively known that the most contagious period of the disease is before the eruption, which often means, in mild cases, before it is known that the child is ill. Children who have not had the disease and who have been directly exposed to possible infection from the child who is known to have the disease should remain out of school and away from other children for a period of at least fourteen days.

It has been shown that the contagium of measles, infectious as it is, is transmitted by a more or less close contact. In the wards of hospitals measles has been treated in box compartments open at the top, without giving the contagium to adjoining beds.

The greatest danger of this disease is to young children; therefore when a schoolchild becomes infected, although the disease is almost universal in civilized countries and the majority of mankind has had it or will have it, the greatest of care must be taken that other children do not acquire this disease and later give it to infants in their households. Consequently, careful cleanliness and antiseptic measures should be used in a room in which the infected child had his desk. It is probably rarely necessary to close a school or a schoolroom on account of measles.

Physicians who are in university and seminary or boarding school towns and see a considerable number of the youth of the nation become seriously ill with such children's diseases as measles and mumps, in view of the well-known fact that these simple diseases are frequently more serious in older persons than in children, often question the wisdom of preventing the occurrence of such diseases in children. The answers to such a point of view are: 1. The more cases of measles there are, the greater will be the number of deaths, especially among infants and young children. 2. The more measles there is, the greater will be the number of permanently injured ears, in spite of good treatment.

The present hope must be that the germ of measles will be discovered and that a vaccine will be elaborated that will cause the individual to be as immune against measles as he is now immune against smallpox from cow-pox vaccination.

TREATMENT

In the first place, if the child is very young, the danger from measles is greater. Also, the death rate in the summer months is smaller than in the winter months. This is because this catarrhal disease so readily tends to cause lung and ear inflammations. As seen so frequently in many diseases, typically pneumonia, the mortality in hospital cases of children with measles is greater than in private houses, which means that such children frequently come from the unhygienic atmosphere and surroundings of tenement houses.

A patient with measles must be isolated. The room must be warm, as these patients should not be subjected to cold drafts or cold air. Chilling is especially harmful in measles. This does not mean that

7. Von Pirquet: Ztschr. f. Kinderh., 1913, vi, 1.

the air of the room should not be fresh and clean, and the ventilation the best possible.

Eyes.—Unless the child is very young and cannot wear colored spectacles, the room should not be dark. Sunlight is as essential for the welfare of patients with measles as it is in any other disease. It is absolutely unnecessary, in ordinary cases, to have the room black dark on account of the eyes. If the eyes are inflamed, the child will cooperate and really enjoy using colored spectacles. Of course, when it is time for the child to go to sleep, the room may be darkened, and the glasses removed.

A saturated boric acid solution may be used as a wash on the eyes, and if it seems advisable, some simple eye-drops may be used, such as:

	Gm. or c.c.	
℞ Acidi borici.....	25	gr. v
Aquae camphorae.....	15	fl℥ ivss
Aquae .....q.s. ad	25	fl℥ i

M. Sig.: Use as eye-drops three or four times a day.

If the lids tend to stick together after sleeping, they should be gently washed with warm boric acid solution or plain warm water, and before the child goes to sleep the edges of the lids may be anointed with thick white petrolatum.

Cough, Etc.—If old enough, the child should gargle several times a day with some simple, warm, alkaline sedative solution. If the child is not old enough to gargle, the throat should be sprayed. The nose should also be sprayed occasionally, if it seems stopped up. However, it is often well to leave the nose alone in measles. Most nasal douching is inadvisable, as tending to force fluid or secretions into the eustachian tubes.

Most of these patients require some simple expectorant mixture, although many physicians are losing faith in the activity of so-called expectorant drugs. There is no safe drug that promotes the secretion of the mucous membrane of the upper air passages and bronchial tubes more than does ammonium chlorid. It is of advantage in causing the cough to be less dry, and therefore aiding the expulsion of any mucopurulent matter that may be in the trachea and bronchial tubes. Also, if the cough is excessive from irritation, a sedative should be added to prevent the unnecessary coughing. A child 5 years old may receive the following:

	Gm. or c.c.	
℞ Codeinae sulphatis.....	.05	gr. i
Ammonii chloridi.....	3	ʒ i
Syrupi tolutani.....	50	fl℥ ii
Aquae .....q.s. ad	100	fl℥ iv

M. Sig.: A teaspoonful, in water, every two or three hours, when the child is awake.

If the child's cough is not excessive or irritable, the codein may be omitted from the mixture. As soon as the expectoration is more free and there is no excessive amount of coughing, the medicine may be stopped. A child 10 years old should receive twice the amount of codein sulphate, and the ammonium chlorid should be increased to 5 gm., and if deemed advisable, the sour sirup of citric acid may be substituted for the sweet sirup of tolu in amount of 25 c.c. to the 100 c.c. mixture.

Bowels.—In the beginning of the disease, the child should receive a small dose of calomel, 0.05 or 0.10 gm. (1 to 1½ grains) given with milk; or a dose of castor oil, or some rhubarb or cascara; at least, the bowels should be thoroughly and well moved. Minute doses of calomel frequently repeated should not be given, as such dosage causes irritation and no benefit. Subsequently the bowels should be moved daily with some gentle laxative, if such is needed.

Diet.—The food depends on the temperature, and should be liquid and simple as long as the temperature is elevated. As soon as the temperature falls to normal, the child should receive good nutritious food, and plenty of it. It is inadvisable to give meat in any form, including broths, as long as the eruption is present. If, as has been suggested, the eruption in measles is caused by some irritant circulating in the blood, such as occurs in urticaria, representing a sort of anaphylaxis, the proper diet comprises cereals, milk, and plenty of water. Such little patients are better without fruits, as sometimes even orangeade or lemonade seems to cause more itching and discomfort of the skin.

Fever.—The temperature rarely calls for much treatment. If it is high, however, one or two doses of acetanilid will generally be sufficient to reduce it. Hot sponging will cool the child as much as cold sponging will, and with less disturbance. Cold sponging in measles is inadvisable. As often as the child is bathed or sponged for temperature, the surface of the body should be powdered with some bland talcum.

Skin.—Unless the room is cold and damp, or the patient is otherwise ill, a cotton nightdress will cause less itching and discomfort than would a warmer flannel or silk shirt. All through the illness the nurse should recognize that it is the secretions of the nose and throat that cause infection of others, and not the eruption or exfoliation from the skin. This does not mean that it is not necessary to sterilize the child's garments and bedclothing, as such may carry the infection from the nose and throat.

Convalescence.—Prolonged, careful convalescence is essential in measles. Measles, like whooping cough, is often a forerunner of pulmonary tuberculosis. Probably no attack of measles ever occurs that does not cause enlargement and more or less inflammation of the bronchial glands. If such glands harbor tubercle bacilli, they are stimulated to cause an acute infection. On the other hand, immediately after an attack of measles a patient is doubtless more susceptible to infection from tubercle bacilli. Therefore, before the child is returned to school the cough should have ceased, his weight should be normal, and his nutrition should be good.

Persistent enlarged glands in the neck or elsewhere, and adenoid conditions or enlarged tonsils, should all be regarded with suspicion. Such conditions are liable to be accentuated by an attack of measles, and proper treatment should be instituted. A suppurating ear must be treated by a specialist until pronounced cured and the hearing is as near perfect as possible. The physician should remember that most defective ears follow measles, scarlet fever and influenza; that an acutely infected ear, if immediately correctly treated, is generally saved intact; distention and perforation may occur without pain. Consequently, he should be ever alert to see that the complication of middle-ear inflammation is immediately treated.

(To be continued)

Typhoid and War.—In six years the typhoid germ kills more people than were killed on both sides during the four years of the Civil War.—Typhoid Fever, circular prepared by the North Carolina State Board of Health.

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SATURDAY, MARCH 6, 1915

CURRENT ASPECTS OF MILITARY SURGERY

Although there is no dearth of news from the front in the present European conflict, it can scarcely be said that there has been a surfeit of authentic information relating to the medical features of the great campaigns that are taking place abroad. The leaders in medicine and surgery most competent to report the situations that confront the medical organizations of the enormous armies in the field have been too busy with the immediate demands of the thousands of sick and wounded and with the problems created by new conditions of warfare. The helpful tasks of literary-scientific retrospect and review must be postponed until the future, when a secure peace will afford an opportunity to learn in fuller measure the lessons which the experience of the medical staffs affords.

An occasional glimpse of the real state of affairs seen with the eyes of the expert at this early date is, accordingly, of more than incidental interest. For this reason we record some of the impressions which Professor Tuffier, the Parisian surgeon, has lately communicated.[1] At the outset it must be recognized that the questions of paramount importance in the surgery of the wounded involve, first of all, the prevention or diminution of sepsis; secondly, promptness of treatment, and thirdly, transport of the wounded from the firing line to the base hospitals in ways that are as humane and as little harmful as the conditions will permit. Obviously an ideal management of the situations which are created is never possible; for, as has been remarked by a keen observer of the work of many battlefields, from the point of view of the commanding generals, the patients are merely a part of the unfortunate and inevitable waste of war, and cannot be allowed to take precedence over supply trains for the troops in critical moments.

"I desire to do honor," Tuffier writes, "to the teachings of two great French surgeons, Chassaignac and Lucas-Championnière, the triumph of whose theories is henceforth incontestable—namely, the superiority of the method of antisepsis over that of asepsis, and the drainage of infected wounds at the most dependent angle." This quotation will serve to indicate the direction and intent of much of the surgical work of more immediate importance. With non-closure of wounds as a rigid rule, and with an unremitting watchfulness for evidences of insidious acute septicemia or gangrenous emphysema which may demand major operative intervention, the tendency of the French surgeons has been toward a primary conservative surgery of the limbs instead of treatment by amputation. The more frequent injuries are caused by rifle bullets, shrapnel and shell splinters. The part played by the latter in the development of the most dangerous wound infections is so great that immediate extraction of the splinters is of the first importance. Bullet wounds are usually less formidable, as has been recognized for some time in military surgery. Under the modern system, after extraction of superficial splinters, cleansing of the wound, and local dressing, the patients with complicated fractures, as well as those with bullet wounds of the chest, can usually be transported successfully from the station of departure to the larger hospitals, where further extensive surgical intervention is often quite unnecessary.

A far more difficult surgical problem is presented by the wounds of the abdomen. Laparotomy and suture of the intestine seem impossible with any chance of success in surroundings where septic cases abound and where men are arriving every minute with wounds of all degrees of severity demanding immediate examination and treatment. At most, if percussion shows the presence of a large intra-abdominal effusion, as it often does, a suprapubic incision may be made under local anesthesia and the wound drained. The whole treatment of abdominal wounds at the field hospital—the first clearing house for the wounded—resolves itself into this: to keep the patient in a sitting position and without food, until he arrives at a hospital provided with suitable facilities for further treatment.

As has been expected, tetanus is the great complication of wounds received in battle. It is at present seen in every grade of military hospital. In the great majority of cases, Tuffier assures us, inoculation occurs on the field of battle and only exceptionally in the hospital wards. The most frequent sources of tetanus are shell wounds, wounds soiled with earth, and wounds of the fingers and toes. It has been suggested that inasmuch as many of the wounded are returned from the front in cars that have been occupied by horses, and since these animals are known to harbor the tetanus bacilli, a prominent source of infection is hereby afforded. Inoculation in this way is, of course, theoretically possible; but in view of the protective dressings which the wounded carry and of the non-selective distribution of the infection, it is hardly probable that the railroad trucks are the real patho-

1. Tuffier: A Contribution to the Study of Military Surgery, Brit. Jour. Surg., 1915, ii, 449.

genic factor. Tuffier is convinced that patients presenting no specific symptoms are not infrequently carriers of the tetanus bacillus on the surfaces of their wounds.

The counsel of perfection—the destruction of microorganisms in a wound by means of the first dressing—can rarely be carried out adequately at the front. Antitetanic serum must therefore be used at the earliest possible moment. Tuffier argues that tetanus must be attacked on the field of battle where it originates, and it is there that antitetanic serum should show its value. He even believes that the available supply should be employed for the newly wounded, and systematically injected before the first dressing is applied. Only the surplus should be furnished to hospitals in the rear; for, Tuffier[1] writes, "at the present time we have not an instant to lose; tetanus is our most cruel enemy, and this measure ought to give us the maximum chance of success."

The unexpected frequency of gangrenous emphysema in the present war has already been pointed out in THE JOURNAL.[2] The management of this treacherous infection, even with free incisions and cautery along with deep injections of hydrogen peroxid, is at best insufficient. Preventive treatment — the removal of the foreign substance carrying the septic material into a hidden part of the body without an adequate drainage outlet—must be depended on to reduce the prevalence of the infection.

The unparalleled exigencies of the present war are responsible for more than wanton waste and cruel suffering. They give rise to an undeniable mental depression under conditions in which, despite the most commendable courage and endurance, the guarded traditions of success in surgery are overthrown and the highest scientific skill is hampered by the impossibility of exhibition. It is due to our colleagues at the front that the shortcomings of military surgery should be charged to their real source.

THE SUSTAINED INTEREST IN THE PROBLEM OF TUBERCULOSIS

The National Association for the Study and Prevention of Tuberculosis reports that $20,700,000 was spent last year in combating this disease in the United States.[3] Notwithstanding the immense sums expended, it is doubtful whether we are getting our money's worth in lowered death-rate, which is, after all, the final criterion by which the success or failure of the antituberculosis campaign must be determined. The seriousness of the problem is recognized by leaders of thought and activity in other vocations than medicine. Notable among these is Governor Craig of North Carolina, who devoted a considerable portion of his annual message to the subject.[4] His state has 18,000 cases of tuberculosis known to the health authorities. He estimates that the entire revenue of the state would be insufficient to care for all its tuberculous victims in sanatoriums, and he urges that some means be found to help those who cannot be accommodated in institutions.

Most of the legislation so far enacted for the control of the disease has tended to exaggerate the dangers from casual exposure, and to emphasize the value of segregation in sanatoriums at the expense of every other consideration. Evidence accumulates daily that tuberculosis is a house infection or family disease, and that the proper way to stamp it out is to remedy the home conditions which predispose to it. That it is preeminently a disease produced by intimate rather than casual contact is shown by recent investigations of the Public Health Service[5] and also by Lampson's survey of tuberculous families made for the Minnesota State Board of Health.[6] Carrington, Foster and Sweet of the Public Health Service studied the influence of the migrant consumptive on the health of the community to which he moves. These studies were conducted in North and South Carolina, Texas and New Mexico, and in none of the communities frequented by tuberculous persons in search of health was there the slightest indication of the spread of the disease from them to the native population. Lampson's investigation of the spread of the disease was an intensive study of tuberculous families in five Minnesota counties. A list was made of all deaths from tuberculosis for the year 1911 and previous to Aug. 1, 1912, and the surviving members of the families were then examined for evidences of the disease. Whenever there were no tubercle bacilli in the sputum, or positive physical signs, the von Pirquet test was used. Ninety-seven families were studied, and for individual members of these families 449 charts were made, which indicated the findings under the following heads: name, sex, age, nationality, social condition, school attended, height, weight, general appearance, nutrition, exposure, lungs, bones, joints, skin, glands, sputum, pulse, temperature and respiration. These results were tabulated to show the amount of infection from (*a*) complete exposure, that is, intimate exposure for a long time; (*b*) partial exposure, when the patient was away for part of his illness, or members of the family were away during that illness, and (*c*) doubtful exposure, when reported death was apparently from some other cause than tuberculosis.

While the amount of material is not large, the striking uniformity of results in the different locations adds weight to the findings, which were substantially

2. The Bacteriology of the Wounds in the War, editorial, THE JOURNAL A. M. A., Jan. 30, 1915, p. 438. (Other references are given in that editorial.)

3. Statistical Report of the National Association for the Study and Prevention of Tuberculosis, Jan. 2, 1915.

4. Tuberculosis—An Important State Problem, Pub. Health Rep., Jan. 15, 1915, p. 145.

5. Annual Report, Surgeon-General, U. S. P. H. S., 1915.

6. Lampson, H. G.: The Spread of Tuberculosis, Pub. Health Rep., Jan. 8, 1915, p. 75.

as follows: Complete exposure of families resulted in a positive von Pirquet reaction in 79 per cent. of the surviving members of those families, whereas in partial exposure the positive reactions were only 28 per cent. In those classified as doubtful exposures, the positive reaction was still less frequent, only 8 per cent. of these showing evidences of infection. In the families exposed to pulmonary tuberculosis, 70 per cent. of the members showed signs of infection, and in those exposed to non-pulmonary tuberculosis 32 per cent., while in the non-tuberculous families only 8 per cent. presented any evidence of the disease.

In view of the increasing evidence that both the predisposing causes and the successful treatment of tuberculosis are inseparably bound up with the problems of the home, it is to be hoped that at least a part of the sustained interest in the subject be directed toward a rehabilitation of tuberculous families rather than ill-advised segregation of individual members.

THE HARRISON LAW A NATIONAL OBLIGATION

Both newspaper comments and professional criticisms indicate that there is much misunderstanding of the Harrison law, which has just gone into effect. Many physicians have not fully grasped its purpose. A brief statement of the history of the law may, perhaps, be of value.

The Harrison law is not the result of any sudden spasmodic impulse on the part of Congress. It is, on the contrary, a part of a carefully considered program for the control of the traffic in habit-forming drugs and especially in opium. This movement is not confined to this country; it is international, although the United States, it is a pleasure to record, has been the leader in the movement. It has been a part of the established policy of our government since the earliest relations with China and other oriental nations to discourage the opium traffic in the Far East. As early as 1833, a treaty with China forbade any American citizen engaging in the opium trade. In 1906, China began earnest efforts to crush out this evil. To aid her in this, the United States initiated an international movement to secure the cooperation of the leading Western nations. As a result, there met at Shanghai in February, 1909, the representatives of thirteen nations, comprising Austria-Hungary, China, France, Germany, Great Britain, Italy, Japan, the Netherlands, Persia, Portugal, Russia, Siam and the United States. This conference resulted in the establishment of the International Opium Commission, appointed to study the entire question and to submit recommendations. The next step was taken Dec. 1, 1911, when a conference of the powers represented in the Shanghai Commission was held at the Hague. Jan. 23, 1912, the members of the conference signed an agreement for a strict regulation of both national and international traffic in opium, morphin and cocain. To the carrying out of the program for the restriction of habit-forming drugs, not only is our national honor pledged, but also as leaders in this movement, it is the plain duty of our nation to initiate such legislation as may be necessary.

For the carrying out of our international obligations, three bills were drafted. The first, H. R. 1966, prohibited the importation of opium for any other than medicinal purposes. The second, H. R. 1967, prohibited the manufacture of smoking opium in the United States. Both of these bills became laws over a year ago. As there are only a few firms in the country which import opium and none which manufacture it, these laws affected a limited number of persons and so attracted little public comment. The third bill, H. R. 6282, which became a law Dec. 17, 1914, is the Harrison law, now going into effect. In various forms and under different names it has been before Congress for nearly six years. It does not forbid the sale of habit-forming drugs. Only state laws can do that in this country. It restricts traffic in them to persons engaged in legitimate businesses in order to make it possible to trace these drugs from the importer to the ultimate consumer. The suppression of illegitimate traffic in these drugs can be accomplished only by state laws properly drawn and enforced.

The object to be attained is the world-wide restriction of the use of opium and cocain to their proper medicinal purposes. In securing this, the sympathy and support of every right-minded man and woman should be forthcoming. But physicians, especially, as those who know better than any other class the dangers and ravages of drug addictions, should endorse and support in every way this effort for the uplifting of humanity, to which our national honor is pledged.

THE PHYSICIAN AND THE HARRISON NARCOTIC LAW

From the large number of inquiries received, it is evident that many physicians are in doubt as to what they are required to do under the Harrison law and what the law will do to them. So many misstatements on this subject have appeared that a brief summary of the purposes and requirements of the law may be reassuring.

The law affects the physician both as a prescriber and as a dispenser of drugs. The only effect it has on the former—the prescribing physician—is that it requires him to register with the collector of internal revenue of the district, and that in writing a prescription for narcotic or habit-forming drugs he must write thereon the name and address of the patient, have on the prescription his office address and his registry number, and sign his name in full. He can—and should, probably, if he has printed blanks—have his

registry number printed on the blank. He need not keep either copies or records of prescriptions; this is done by the druggist. These prescriptions cannot be refilled. This is all there is to the Harrison narcotic law so far as it affects the prescribing physician. The only expense is in securing his license once a year, at a cost of one dollar. And the only facts to be kept in mind in writing prescriptions are that the patient's name and address must be written thereon and that the physician must sign his name in full—precautions, however, that should be taken on all prescriptions.

If the physician desires any of the specified drugs for his own use, he must then make out an order for them on a blank form bearing his registry number. These blanks are furnished by the Internal Revenue Department in packages of ten for ten cents. The physician cannot order drugs for his own use on a prescription blank.

If a physician is in personal attendance on a patient, he can administer any treatment he sees fit in the form of hypodermic injection, sprays, applications, etc. If he orders a nurse to give such treatment, then the written order must appear in the history sheet with the physician's initials. The statement recently appeared in a druggists' journal that an official ruling had discriminated between a visit to the patient at his home and personal treatment of a patient by a physician at his office, and that one was personal attendance and the other was not. This statement is without foundation. No such ruling has been made.

If a physician dispenses his own drugs, then he must conform to the same restrictions as a druggist. He must order the drugs specified by this law on the blanks furnished by the internal revenue collector, and he must keep a record of the dispensing of such drugs, the date, the quantity and the name and address of the person to whom they were given. This record must be kept in a "suitable blank book," and must be preserved for two years. Drugs dispensed while the physician is in personal attendance on the patient do not need to be recorded. Neither do preparations which do not contain more than 2 grains of opium, ¼ grain of morphin, ⅛ grain of heroin or 1 grain of codein.

These provisions are simple and need cause the physician little annoyance. The great majority of physicians write prescriptions. Physicians who dispense, only occasionally dispense preparations of narcotic drugs. The restrictions for both classes are simple and easily observed. The cost for all physicians is the same, a nominal fee for registration, a small cost for order blanks. Additional rules may be found necessary as the law is enforced, but there is at present nothing that need cause physicians any inconvenience or annoyance.

But what about old habitués, persons suffering from painful and incurable diseases, and others to whom opium in some form is absolutely necessary? Every physician knows of such cases. For them the physician so long as he complies with the law of his own state can prescribe whatever he sees fit. But it must be done openly and without attempt at evasion and the physician must be ready and able at any time to justify his acts. The whole purpose of the law is to restrict the use of opium and cocain to legitimate channels.

THE PREVENTION OF INFANTILE SCURVY

The widespread employment of pasteurized milk and the growing use of this food in the dietary of young infants have brought with them certain inherent dangers which need to be recognized quite as clearly as the advantages of the pasteurization process are appreciated. It is not the intention to discuss at this time the reasons which are responsible for the current practice in the treatment of most milk prior to its distribution before use. The arguments are well known to the majority of the members of the medical profession and they have won the approbation of most hygienists. The feeling of safety against serious infection has an undoubted justification in the present organization of the milk industry.

There are, however, attendant dangers which should be widely known because they are easily averted. Infantile scurvy may readily develop in infants that are fed largely, if not exclusively, on pasteurized milk. This is true not only when the milk is heated carefully to a temperature of 165 F. for twenty minutes, but also with the product obtained after the more conservative pasteurization at only 145 F. for thirty minutes.[1] Pasteurized milk may not be the sole factor in the production of infantile scurvy; but the important rôle which it plays has been shown by the prompt disappearance of all symptoms when unheated milk is substituted for the pasteurized milk, the formula and amount of food remaining unchanged. For these facts there exists the evidence of careful observers.[1]

We are aware that the French clinicians in particular oppose the charge that the heating of milk can produce a product which may develop scurvy. Boiled milk appears to have been fed by them without detriment in thousands of cases. Nevertheless, Hess and Fish point out that whatever the explanation of such results may be, it must be remembered that these statistics refer to patients treated in dispensaries, and that they were not observed under ideal conditions. There can be no doubt that milk loses some of its antiscorbutic qualities as the result of heating, though the cases that develop from the use of a food pasteurized at 145 F. may be rather mild. They may show petechial hemorrhages, some tenderness of the bones, a very slight degree of peridental hemorrhage,

1. Hess, A. F., and Fish, Mildred: Infantile Scurvy; The Blood, The Blood-Vessels and the Diet, Am. Jour. Dis. Child., December, 1914, p. 385.

yet fail to evince any tendency to progress. In such instances Hess and Fish suggest that there seems to be almost, if not quite, a balance between the demands of the body and the supply in the diet of the essential substances concerned in the scorbutic phenomena.

The use of antiscorbutics in these cases is, of course, a procedure familiar to all pediatrists. The general practitioner is more often oblivious of both the dangers lurking in the exclusive use of heated milk and the corrective agents which are available. Although raw milk contains sufficient of the essential substances to prevent the development of scurvy, its antiscorbutic potency is mild compared with what has been termed the "miraculous change" which is brought about by giving orange juice. One ounce of this given daily suffices to avert nutritive disaster.

Hess and Fish[1] have acquired some interesting new experiences in relation to this potent antiscorbutic, which is so widely available and easily administered to children at all ages. The efficacy of vegetables is distinctly inferior to that of orange juice. Satisfactory results appear to follow the routine use of orange juice that has been boiled five to ten minutes. It is surprising that heat apparently does not lessen the therapeutic value in the case of this fruit product, because studies on animals subjected to experimental scorbutus[2] have indicated that the antiscorbutic property of such plant materials as cabbage is readily destroyed by cooking.

It appears further from the experience of Hess and Fish that the juice of orange peel, prepared by extraction with water and sugar, serves the same purpose as the liquid expressed from the interior of the fruit. This means an economy in large institutions. Potato—not potato flour—likewise has been found efficacious, though not in the same rapid degree as orange juice. It is suggested that this vegetable may be added to pasteurized milk as potato-water (made by boiling potato in water) instead of the barley-water which is now commonly used as a diluent. This is in harmony with the fact that epidemics of scurvy in adults have been reported in countries where the potato crop has failed.

Not long ago the potency of butter-fat, egg-fat, and cod liver oil in facilitating the growth of young rats under conditions of diet adequate in respect to energy but lacking some growth-promoting factor was pointed out in connection with the nutrition studies of McCollum and Davis and Osborne and Mendel.[3] Hess and Fish have found that cod liver oil did not prevent the development of scurvy in infants. This distinction should be borne in mind in connection with the current discussion of "vitamins" and diet deficiency diseases.[4] The substances concerned in the prevention of scurvy and beriberi, or in the promotion of growth presumably have no direct relation to each other; and however essential to life they may be, we are not yet in a position to group them collectively into association with so promiscuous a category as the proposed "avitaminoses" of Funk. Each deficiency must be studied independently.

Incidentally, the desirability of having some helpful guide to the onset of scurvy leads us to quote the proposed "capillary resistance test" of Hess. It consists in subjecting the capillaries and vessels of the arm to increased intravascular pressure, by means of an ordinary blood-pressure-band, and of observing whether this strain results in the escape of blood through the vessels—the appearance of petechial hemorrhages into the skin. The vessels of normal infants were found to withstand, without apparent disturbance, 90 degrees of pressure for three minutes, whereas the vessels of infants suffering from scurvy gave way under this pressure. The test is not specific for scurvy, but is a method of demonstrating a weakness of the vessel walls, whatever may be its cause.

2. The Effects of Exclusive Feeding—Experimental Scurvy, editorial, THE JOURNAL A. M. A., July 20, 1912, p. 198.
3. McCollum, E. V., and Davis, Marguerite: Jour. Biol. Chem., 1913, xv, 167. Osborne, T. B., and Mendel, L. B.: Ibid., 1913, xv, 311; ibid., xvi, 423. Butter-Fat in Infant-Feeding, THE JOURNAL A. M. A., July 18, 1914, p. 246; Correspondence, Aug. 1, 1914, p. 420.
4. Flavors and Vitamins, editorial, THE JOURNAL A. M. A., Dec. 26, 1914, p. 2296.

Current Comment

REASON FOR THE FAITH WITHIN US

Sometimes, though not often, we are asked why THE JOURNAL does not "let up" on the subject of fraud in medicine, especially as it applies to the "patent medicine" evil. Our best answer to such an inquiry would be to ask the person making it to spend a few days in this office and read some of the letters that come from the public and the profession relative to the subject. This, of course, is impracticable, and the best we can do is, occasionally, to give such letters publicity. Many of the communications of this type—and therein lies the tragedy of it—are privileged and could not with propriety be printed. Some, however, are available. The two letters that follow are from widely different sources, the first from a physician in Tennessee and the second from a woman in New Hampshire. While, in a way, they deal with subjects that are as widely separated as their geographical sources, yet they both point in the same direction and they both call for a common remedy. Here is the letter from Tennessee:

"The exposure of Wine of Cardui alone is enough to cause any doctor who has the interest of humanity at heart to subscribe to THE JOURNAL. If he can't justify it any other way, call it charity. Many a poor, hard-working man has come home at night, compelled to spend his last dollar for the nostrum in order to satisfy his suffering wife's mind—and keep down the gossip of neighbors who might say he refuses to buy medicine for his wife—even though he knows it is a fake of the eighteen carat type. That man has been saved untold mental anguish, and the absolute necessities of life, in having you come to his rescue. May THE JOURNAL keep up the fight. We are with you."

The point raised by the doctor exposes the rottenness of the nostrum business from a new angle. There

is no doubt that the problem he presents is by no means an uncommon one, especially in the rural districts, and among the poorer classes. Nostrum manufacturers frequently refer to their preparations as the "poor man's medicine." In the same way the beneficiaries of the low-grade commercial medical schools have called these institutions the "poor boy's school"; and in the same way, too, the manufacturers of adulterated and sophisticated foodstuffs try to justify their products by referring to them as the "poor man's food." The argument is as fallacious in one as in the others. The woman from the New England village wrote:

"My husband has had tuberculosis of the spine for two years and used the 'cast treatment' but was persuaded to use 'Yonkerman's Tuberculozyne' taking four, yes, I think five treatments as a strength and health builder but quit it three or four months ago, as it did not cure. . . ."

Yonkerman is a horse-doctor and his "Tuberculozyne"[1] is one of those wretched consumption cure frauds that lure the ever-hopeful consumptive to destruction. It is letters of this kind, coming in almost daily, that give an all-sufficient answer to the query propounded at the outset.

NEW YORK'S NEW SANITARY CODE

Under the new health law in New York, enacted in 1913, a public health council is created whose duties, among other things, is to establish sanitary regulations dealing with "matters affecting the security of life or health or the preservation or improvement of public health" in the state outside of New York City. The council consists of the commissioner of health and six appointive members who share with the commissioner responsibility for health regulations. They are charged with the duty of prescribing the qualifications of directors of divisions, sanitary supervisors, public health nurses, registrars of vital statistics and local health officers. In the first report of the council issued as a part of the Thirty-Fifth Annual Report of the State Department of Health for 1914, it is said that in framing the sanitary code the council aimed to secure "the advantages which science and experience, especially during the last quarter of a century, have offered in the prevention of disease and in the promotion of the common welfare, with the least possible interference with the business, comfort and convenience of the people concerned." Heretofore the enactment of sanitary regulations has been exercised by over fourteen hundred local boards of health with consequent lack of uniformity and effectiveness. Under the present law the state is divided into sanitary districts in each of which a sanitary supervisor counsels and assists the local health officers in carrying out the provisions of the code established by the council. So far seven chapters of the code have been enacted, the first covering definitions and general provisions; the others relate to communicable diseases, production and handling of milk and cream, the practice of midwives, labor camps, nuisances, and miscellaneous subjects such as spitting, the common drinking cup, the common towel, barber shops, etc. It will thus be seen that the code as so far provided covers many of the important features of public health regulation and disease prevention. The outstanding and most valuable feature of the law providing for the council is the uniformity secured by the establishment of a code governing all health bodies, particularly as applied to the handling of epidemics of the communicable diseases, the protection of milk and food supplies, etc. Elasticity is given to the code by the provision that regulations in addition to those prescribed by the code may be made by local health bodies, provided they do not contravene the provisions of the general code. In framing the code, the council states that it has attempted to make it comprehensible to the citizens, not burdensome, and has eliminated useless sanitary procedures and obsolete quarantine regulations. The seven chapters of the code are set forth in the report.

1. This fraud is described in the pamphlet "Consumption Cure Fakes," price 10 cents.

THE SOURCES OF ENERGY FOR THE HEART

There is a prevailing sentiment, based on convincing experiments gathered during several decades, that, under ordinary circumstances of diet and environment, muscular activity has hardly any influence on the metabolism of the proteins. The source of energy for the contraction of our muscles is in general to be sought in non-protein stores of supply, particularly in carbohydrates. Every text-book teaches these now familiar facts, although the dietary practices of the athlete and his "trainer" often are at direct variance with the suggestions of the science of nutrition. A striking way in which to demonstrate the nature of the energy metabolism of muscle is furnished by the surviving isolated heart, which can now literally be made to beat for hours and even days after its separation from the organism. From experiments with such a test object engaged in characteristic work, it has become plain that carbohydrate is used up by the contracting cardiac musculature. Although the evidence already obtained with contracting isolated muscles has been negative with respect to the participation of proteins in its energy requirement, the newer facts of the chemistry of nutrition have seemed to warrant added trials. Now that the modern researches have made it clear that the nitrogenous intake reaches the tissues, including the musculature, in the form of amino-acids, the rôle of these compounds as the immediate representatives of the nitrogenous pabulum remained to be investigated. Buglia[1] has accordingly perfused surviving hearts with Ringer's solution to which representative amino-acids — glycocoll, alanin, tyrosin, aspartic and glutamic acids, asparagin or glutamin — were added in various concentrations. Despite the continued functioning of the musculature, neither the added nitrogenous substance nor any of those present in the cardiac tissue itself were indicated by Buglia's analyses as having been used. The expected happened.

1. Buglia, G.: Déterminations d'azote titrable au formol dans le liquide qui a circulé à travers le coeur isolé de mammifère, Contribution aux recherches sur l'exchange azoté du tissu musculaire, Arch. ital. de biol., 1914, lxi, 277.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

College Gets Appropriation.—The Arkansas legislature has made an appropriation of $65,000 for the Medical Department of the University of Arkansas for the next biennium. It has also passed a bill providing for the erection of a state hospital at Little Rock to be conducted in connection with the medical department of the university.

GEORGIA

Medical Society Reorganized.—At a meeting of physicians of Mitchell County, held at Pelham, February 19, the Mitchell County Medical Association was reorganized and the first meeting will be held at Camilla on March 10.

Atlanta Neurologists Organize.—The Atlanta Neurological Society was organized February 11, with the following officers: president, Dr. E. Bates Block; vice-president, Dr. Hansell Crenshaw; secretary, Dr. Lewis M. Gaines. The society will hold its meetings on the second Thursday of each month.

Hospital Happenings.—A charter was granted on February 13 to the Cooperative Hospital Association, Atlanta. The organization has already leased a building in Atlanta for its work. The plan of the hospital is to furnish hospital treatment to persons who are unable to go into the pay wards of other hospitals.——The new university hospitals erected at Augusta at a cost of $500,000 have been turned over to the city by the contractors and the formal opening will occur about March 15.——A new site has been selected for the Georgia Baptist Hospital, Atlanta, and plans have been made for new buildings to accommodate about 500 patients. A new medical staff has also been selected.——The Hospital for Negroes, established by William H. Thomas at Rome is nearing completion. The ultimate plan of the hospital is to have cottages in addition for male and female patients, for a maternity hospital and for a hospital for children.

ILLINOIS

Hospital Dissolved.—The stockholders of the Amboy Hospital Company, at a recent meeting, voted to dissolve the corporation and on February 27 the building was sold at public auction.

State Board Will Provide Nitrate of Silver.—It is announced that the State Board of Health will shortly be ready to supply local physicians with silver nitrate in individual tubes for the avoidance of ophthalmia neonatorum.

Chicago

Personal.—Dr. Leigh K. Patton, an intern at Cook County Hospital, fell in an elevator shaft in the institution, February 24, fracturing his skull and right arm.—Drs. Greene V. Black, Truman W. Brophy and Eugene S. Talbot were awarded the degree of Doctor of Science at the dedicatory exercises of the Evans Museum and Dental Institute of the University of Pennsylvania, February 22.

INDIANA

Eugenics and Free Lunch Defeated.—The state legislature has defeated the eugenic bill, but has passed a bill to abolish the free-lunch counter in the saloons. The inspection made by the State Board of Health showed the free-lunch counter to be most insanitary.

Filtration Plant Ordered.—The public service commission has ordered the New Albany Water Company to install a filtration plant. The State Board of Health ordered this some time ago and was ignored by the city council, but after having evidence from Dr. John N. Hurty, Indianapolis, secretary of the State Board of Health, that samples of the Ohio River water showed typhoid bacillus, the order was issued.

Dental Clinic Appropriation.—The Indianapolis Board of Health has appropriated $500 to pay for material used in the work for schoolchildren at the dental clinics, and $300 has been appropriated for the use of spectacles for children who need them and whose parents cannot afford to buy them. The board has also signed a contract with the Indiana University School of Medicine under which, for the sum of $975 a month, the school agrees to maintain the city dispensary.

Child Welfare Exhibition.—During the week of February 16 to 25, a child welfare exhibit was held in Tomlinson Hall, Indianapolis, and was well attended. The exhibit was divided into numerous topics, among them being housing and homes, schools, moral and religious life, kindergarten, health, child labor and conservation of vision. A series of illustrated talks were given on the subject represented. In a central court there was a continuous program of drills, gymnastics and folk dances and four smaller courts were devoted to school work, domestic science, manual training, kindergarten, rural schools, and a model school room. The organization had for its head Dr. Frank B. Wynn, and the director of all the exhibit was Dr. W. F. King. Practically all the physicians of the city cooperated in making the exhibit a success. It is the intention to have the exhibit become a permanent one for use throughout the state.

Hurty Anniversary to Be Celebrated.—The Indianapolis Medical Society, at its meeting February 23, adopted a resolution suggesting a celebration March 12, to commemorate the nineteenth anniversary of Dr. John N. Hurty as state health officer. Dr. Frank B. Wynn, Indianapolis, president of the state society, and Drs. David Ross and Alfred Henry, president and secretary of the Indianapolis society, were named a committee to arrange a suitable observance of the anniversary.

During the past week Dr. Hurty was elected president of the Indiana Sanitary and Water Supply Association at its annual meeting. These justly deserved honors to Dr. Hurty are apropos, as the state legislature is now considering a bill which would make the state health officer a political appointee. The leading newspapers of the state have had scathing editorials denouncing this form of legislation.

IOWA

New Hospital Opened.—The Primghar Hospital was opened for inspection February 12 and 13; on February 14 dedicatory services were held, and the hospital was opened for the reception of patients on February 15.

Personal.—Dr. Campbell Palmer Howard, professor of medicine in the University of Iowa, Iowa City, has been granted an indefinite leave of absence and will leave for Montreal, February 27, to join the McGill General Overseas Hospital, Montreal, which will go to Europe next month. Dr. Clarence E. Van Epps will look after Dr. Howard's work in his absence.——Dr. M. Charles Mackin, assistant physician at the Clarinda State Hospital, has been appointed superintendent of the Iowa State Institution for Inebriates, Knoxville.——Dr. Joseph C. Ohlmacher, Clarinda, will succeed Dr. Mackin as first assistant physician at the Clarinda Hospital, and Dr. Roscoe D. Smith, third assistant physician, has been promoted to second assistant physician.——Dr. William S. Parks, Brighton, who has been operated on recently, has recovered and resumed practice.——Dr. George W. Yavorsky, Belle Plaine, has been appointed local surgeon for the North-Western System, vice Dr. James B. Cox, Belle Plaine, deceased.——Dr. Beth Vincent, Boston, has started for Europe to work in the American Ambulance Hospital, Paris.

KANSAS

Division of Fees.—A bill forbidding the secret division of physicians' fees has been introduced into the House of Representatives. It provides that no physician or surgeon shall pay or offer to pay to any other physician or surgeon any fee for patients brought to him for treatment nor receive any fee for sending patients to other physicians. Division of fees for professional services where made with the full knowledge of the patient or the person paying the bill is exempt. In a word, the bill is aimed at the secret division of fees between general practitioners and specialists, surgical or otherwise. A penalty of a fine of not more than $500 or imprisonment in the county jail for six months or both and the revocation of the licenses of the convicted persons is provided. Hospitals or clubs owning or operating hospitals are included within the provisions of the act which has been reported favorably by the house committee.

MARYLAND

Conference of Charities and Corrections.—The National Conference of Charities and Corrections will be held in Baltimore from May 12 to 19, inclusive.

Health Lectures for Negroes.—The Public Health Conference recently held proved so successful that it has been determined to hold a series of lectures on health topics for negroes exclusively.

MASSACHUSETTS

Summer School.—The Boston University School of Medicine announces that it will conduct a summer school for graduates in medicine from May 3 to June 12. Courses will be offered in dermatology, digestive diseases, gynecology, neurology, otology, obstetrics, orthopedics and pathology. Thirty-six members of the medical faculty will constitute the faculty of the summer school.

Personal.—Surg. Richard H. Creel, U. S. P. H. S., has declined the offer of Mayor Curley of Boston to make him head of the reorganized Boston Health Department, as the surgeon-general finds it impracticable to grant Surgeon Creel the necessary leave of absence.——Dr. John H. McCollom, Boston, for many years connected with the Boston City Hospital, retired February 15.——A banquet was tendered Dr. Herman C. Bumpus, the new president of Tufts College, by the medical and dental schools of the college, February 8. Dean Charles F. Painter, Boston, of the medical and dental schools was toastmaster.——Dr. George B. Magrath, Boston, has been reappointed medical examiner of Suffolk County.

Hospital Dedicated.—The Chapin Memorial Building, connected with the Springfield Hospital, was dedicated February 12. Dr. Chas. P. Hooker, Springfield, delivered an address on the late Dr. Frederick Wilcox Chapin, in whose memory the building was erected. The presentation address was delivered by Mr. George Dwight Pratt and the acceptance on behalf of the board by Col. Stanhope E. Blunt. The building was opened for general inspection February 13. The Chapin Memorial Building is the first of the six to be built facing the present Springfield Hospital group. It is a four-story rectangular building, fireproof, of most modern hospital construction. The first, second and third floors contain private rooms for forty-five patients, and on the fourth floor the Roentgen-ray department and operating rooms are located.

MICHIGAN

Board of Health a State Institution.—The supreme court on February 11 decided that the State Board of Health is not under the jurisdiction of the Civil Service Commission, thus affirming the decision of the circuit court in the case.

Personal.—Dr. Edward T. Abrams, Hancock, has been reappointed a member of the State Board of Health.——Dr. Athanase E. Gourdeau, Ishpeming, who has been under treatment in Chicago for several weeks, has returned home.——Dr. Daniel G. Cook, Holland, is under treatment in Rochester, Minn.——Dr. David B. Downing, Detroit, is ill with diphtheria in St. Mary's Hospital.——Dr. George T. Britton, Kalamazoo, is recovering from an operation for appendicitis.

Mayo in Michigan.—Dr. William J. Mayo, Rochester, Minn., was the guest of honor at the Detroit Academy of Medicine, February 23. On February 22, Dr. Mayo was the principal speaker at foundation day exercises of the department of medicine and surgery at the University of Michigan, Ann Arbor, and on February 24 the Kalamazoo Academy of Medicine gave a luncheon in honor of Dr. Mayo, after which he gave an address on "Some General Considerations Which Influence the Advisability of Surgical Treatment."

The Waters of Mt. Clemens.—Two hundred residents of Mt. Clemens, including twenty-four members of the Macomb County Medical Society, met at the annual banquet of the Mt. Clemens Business Association, February 25. The society has instituted a service between distant physicians and those residents of Mt. Clemens, whereby the local physician acts practically as the intern of the physician who sends the patient. The purpose of the society is to put the administration of baths under the direction of physicians so that scientific treatment may be assured.

MISSISSIPPI

Personal.—The office of Dr. Francis L. Furr, Barlow, was destroyed by fire, February 18.——Dr. Florence L. Dickerson, Salem, is reported to be seriously ill at her home as the result of a cerebral hemorrhage, February 14.——Fire at West Point, February 12, destroyed the offices of Drs. Byron H. Paslay, Samuel R. Deanes, F. Price Ivy and Lon W. Dotson.——The office of Chief of the Bureau of Vital Statistics, Bureau of Census, Washington, is said to have been offered to Dr. Waller S. Leathers, University, dean of the medical department of the University of Mississippi.

NEW YORK

Reappointed on Health Council.—Governor Whitman has reappointed Mr. Homer Folks, Yonkers, formerly secretary of the commission which made the investigation on which was passed the new health law, a member of the state public health council.

A New Antiquack Bill.—Senator George H. Whitney, at the instance of the State Department of Education, has introduced a bill into the legislature aimed at quack medicines and the physicians who lend their names and influence to the sale of such remedies. The bill defines as "unprofessional conduct" the advertising of services or remedies in any manner previously challenged by the State Board of Medical Examiners and disapproved by vote of the Board of Regents. The bill also regulates the issuance of licenses for the regents. Violation is made subject to criminal prosecution.

Personal.—Dr. John Van Duyn, Syracuse, was the guest of honor at a banquet in honor of his semicentennial of his entry into practice, given by the Onondaga County Medical Association and the Syracuse Academy of Medicine, February 23, at which more than 150 physicians paid tribute to the veteran of the profession.——Friends of Dr. Joseph S. Wheelwright, Southampton, gave him a dinner February 20, at which he was presented with a silver loving cup. Dr. Wheelwright sailed for France, February 27, to take charge of a hospital for the relief of war sufferers to be established near Paris.——Dr. Paul B. Brooks, Norwich, has been appointed district sanitary supervisor.

New York City

To Stop Crowding of Cars.—Steps were taken on February 26 by Health Commissioner Sigismund S. Goldwater, with the approval of the mayor, to stop overcrowding of the transit lines. The Public Service Commission having failed to remedy conditions which the Health Department has shown to be a menace to health and decency, the latter has acted by issuing mandatory orders on the New York Railways Company and the Belt Line Railway Corporation to stop overcrowding on the Fifty-Ninth and Eighty-Sixth Street crosstown lines. The number of passengers which it is permissible to carry is limited to one and one-half the seating capacity of the car. This order will be enforced by the police. Dr. Goldwater has signified his intention of taking up one line of transit after another until safe and sanitary conditions shall be secured.

NORTH CAROLINA

Two-County Health Officer.—Henderson and Vance counties have employed a whole-time health officer who commenced work January 1.

Personal.—Dr. Paul B. Means, Concord, has been appointed assistant physician to the New Jersey Hospital for Nervous Diseases, Skillman.——Dr. Arthur S. Pendleton, Raleigh, a member of the staff of the State Hospital, is ill with diphtheria.

NORTH DAKOTA

Personal.—Dr. William F. Maertz, Lidgerwood, has been appointed a member of the State Board of Medical Examiners, vice Dr. Frederick G. Benn, Kulm, resigned.——Dr. Louis W. Meckstroth, Wahpeton, announces his retirement from practice and that he will devote his time to the care of the estate of his sister.

Hospital News.—Governor Hanna suggests to the state legislature that efforts be made to induce the United States government to establish the proposed hospital for the treatment of tuberculosis among the Indians of North Dakota near the North Dakota State Tuberculosis Sanatorium, Dunseith, and not 15 miles east of it, as is at present contemplated. He advises that petition to this effect be sent to the government, as in his belief the two institutions, if located near each other, could cooperate and work in harmony to mutual advantage.——The new St. Alexius Hospital, Bismarck, was formally opened, February 15. The institution has four six-bed wards, besides sixty private rooms.

OHIO

Camp Renamed.—At a meeting of the directors of the Children's Fresh Air Camp of the Cleveland Federation of Charities and Philanthropy, February 16, eight additional directors were elected, and the name of the institution was changed to the Children's Fresh Air Camp and Hospital.

Personal.—The appointment of Dr. J. Morton Howell, Dayton, as a member of the State Board of Health, has been con-

firmed by the senate.——Dr. W. H. H. Woland, Lindsey, is reported to be in a critical condition as the result of a cerebral hemorrhage.——Dr. George F. Zinninger, Canton, who was operated on in January at Rochester, Minn., has recovered and returned home. A reception was tendered him in his home, February 18, by the medical profession of the city, and Dr. Alonzo B. Walker, Canton, on behalf of the physicians, presented him with an office lamp.——Dr. Fred A. Cobb, Toledo, who has been seriously ill with erysipelas, is reported to be convalescent.——Dr. Henry J. Pool, Port Clinton, has lost the sight of one eye as the result of a gas explosion.

OKLAHOMA

Hospital Incorporated.—The Cushing Hospital Company has been incorporated with a capital stock of $4,000 and bids have been asked for a two story, twenty-five room brick hospital building.

Personal.—Dr. Powell Hayes, Frederick, has been appointed assistant physician at the Vinita State Hospital.——Dr. William G. Kiebler, Goltry, sustained a Colles fracture of the arm while cranking his automobile recently.——Dr. John W. Duke, Guthrie, has assumed the duties of state health commissioner, succeeding Dr. John C. Mahr, Shawnee.——Dr. George D. McLean, Oklahoma City, who recently underwent an operation for the removal of gall-stones, has fully recovered.

PENNSYLVANIA

Nurse Appointed for Exposition.—Miss Alice M. O'Halloran, chief nurse in State Department of Public Health, has been designated by Dr. S. G. Dixon, state health commissioner, to go to San Francisco to be in charge of the health department's exhibit in the state building.

Barbers Must Stand Medical Test.—The order recently issued by the Cresson Board of Health requiring all barbers to be sound physically, is rigidly enforced, and notices are being posted in Cresson announcing that all barbers will have to submit to medical examination. Milk dealers will have to submit health certificates and observe sanitary rules on their farms.

Personal.—Dr. Benjamin J. Millard, Mt. Carmel, who has been confined to the house on account of a fracture of the hip, is convalescent and has resumed practice at his office.——Dr. Clayton D. Fretz, Sellersville, has been appointed a member of the board of trustees of the Norristown State Hospital.——Dr. John F. Bryson, Girardville, was operated on recently at the Miner's Hospital, Pottsville, and is doing well.——Dr. John B. Cressinger, Sunbury, who has been ill with pneumonia, is convalescent.

Philadelphia

Patent Medicine Destroyed.—More than 4,000 bottles of "Father John's" medicine, siezed by the government of this city in 1912 on a charge that they were misbranded and misled the public, were condemned and ordered destroyed, February 18, under a decree filed in the United States district court.

Nation-Wide Sanitation Campaign Advocated.—Prof. Charles Wardell Stiles of the Rockefeller Foundation delivered the ninth Weir Mitchell lecture at the College of Physicians, February 16, in which he advocated a nation-wide campaign for sanitation as the only means of stamping out communicable diseases.

Midwinter Smoker.—The midwinter smoker of the Alumni Association of Jefferson Medical College was held in the roof garden of the Hotel Adelphia, March 4. Dr. William W. Keen, emeritus professor of surgery at the college, gave an informal talk on "The Contrast Between the Surgery of the Civil War and that of the Present War."

New System in Health Crusade.—Three hundred bulletin boards, to furnish health information to the most congested housing districts of the city, will be erected in courts and alleys by the child federation. Health talks prepared by the new federation council will be printed in English, Italian, Yiddish, German, Hungarian and many other languages required by the various neighborhoods.

Postgraduate Clinics.—The course of postgraduate clinics on the heart and lungs given Friday afternoon, 5 to 6 o'clock, in the amphitheater of Philadelphia General Hospital, include the following for March 5: Tricuspid and pulmonary-valve lesions; relation of the heart and lungs in disease; March 12, angina pectoris, true and false; March 19, heart block and Stokes-Adams syndrome, and March 26, cardiac neurosis (so called). Physicians are cordially invited to participate.

Personal.—The house of Dr. Nathan Blumberg was destroyed by fire, February 20.——Dr. George H. Shuman has resigned from the department of health and charities to engage in private practice.——Dr. Aaron Brav has been appointed ophthalmologist to the Jewish Hospital to fill the position left vacant by the recent death of Dr. Isaac Leopold.——Dr. Robert R. Bensley of the University of Chicago will deliver the tenth Rush Society lecture of the University of Pennsylvania, March 10.

University of Pennsylvania Alumni.—The Philadelphia Alumni Society of the medical department, University of Pennsylvania, at the annual meeting, voted to increase the Dr. Roland G. Curtin Scholarship Memorial Fund with $250 of last year's surplus. The annual election of officers resulted as follows: president, Dr. William D. Robinson; honorary vice-president, Dr. E. F. Smith; vice-presidents, Drs. Howard A. Sutton, William F. Guilfoyle and James A. Kelly; corresponding secretary, Dr. Benjamin F. Stahl; recording secretary, Dr. J. Milton Griscom, and treasurer, Dr. Morris Booth Miller.

TEXAS

Plague Appropriation Measure Killed.—The Clark bill appropriating $25,000 for the use of the state health officer in the prevention of the entrance of plague into the state, was defeated in the state senate after having passed to engrossment.

Vaccinations at Laredo.—On account of the epidemic of smallpox at Nuevo Laredo, Mexico, February 21, the physicians in the immigration service at Laredo, Texas, compelled the vaccination of every person coming into the United States from the Mexican side. Many persons came over to celebrate Washington's birthday and some thousands attended the bull fight in the Mexican town. On their entrance into the state all were vaccinated.

Personal.—Dr. Casper R. Byars, Bay City, has been appointed health officer of Matagorda County.——Dr. John E. McClung, Corsicana, has been appointed specialist on diseases of the eye, ear, nose and throat at the State Orphan Home.——Dr. Edgar L. Gilcreest, Gainesville, left for Washington, February 14, to report for duty at the headquarters of the American National Red Cross. He will be stationed at the American Hospital, Paignton.——Dr. Thomas B. Bass has been reelected superintendent of the State Epileptic Colony, Abilene.

County Society to Build Bungalow.—The proposition to erect a building exclusively for officers of the Bexar County, San Antonio, Medical Society, and another proposition to lease offices together in an office building having been rejected by the organization, the committee on the general project of quarters for the organization and joint offices for members, have reported in favor of the construction of a one-story fireproof building, of bungalow type, giving a spacious meeting hall, 30 by 44, a pathological museum and a smoking hall, and their report was unanimously adopted. The building, as proposed, will cost about $20,000.

CANADA

Clearing Hospital from Quebec.—The Canadian militia department has sanctioned the formation of a French-Canadian casualty clearing hospital in connection with the army medical corps for overseas service. It will consist of one lieutenant colonel, two majors, one quartermaster, two junior officers, nine surgeons, seven corporals, and fifty rank and file. There will be no nurses. The hospital is being organized under the auspices of Laval University.

Reciprocity with Great Britain.—The Ontario legislature, now in session, is considering a measure to provide for reciprocity between the Ontario Medical Council and the Medical Council of Great Britain. When this measure (and there appears to be no opposition to it) is passed, the Ontario practitioners who are volunteering for the war will be enabled to practice in the hospitals and have charge of the hospitals it is proposed to equip and send across the Atlantic in the near future.

University News.—If the 1,800 students of the University of Toronto, who are at present in training go to the front, the university will be seriously handicapped. Their fees for a year would amount to $151,000, which will be lost to the institution. There would be still left 2,700 students out of the present total of 4,500. Last year's deficit amounted to $87,000.

The medical department will suffer most severely. It is understood that the entire staff, to the number of ninety, has volunteered, but it is not likely that all will be accepted.

Personal.—Dr. Andrew Croll, Saskatoon, has been accepted on the staff of the General Hospital with the Second Canadian expeditionary force.——Dr. Mary E. Crawford, Winnipeg, has been elected president of the Political Equality League. ——Lieut.-Col. John Taylor Fotheringham, M.D., Toronto, has been appointed chief of the medical staff of the Second Canadian Overseas Force.——Surg.-Gen. Carleton Jones, director of the Canadian Army Medical Service, who is in England with the First Contingent, has left for France to establish a clearing hospital so that all Canadian wounded may be sent to the Duchess of Connaught Hospital at Cliveden, in Buckinghamshire.

GENERAL

Leprosarium Bill Passed by House.—A bill to authorize the establishment of a home for lepers under the United States Public Health Service was passed by the House of Representatives, February 25, and sent to the Senate.

Tri-State Physicians Meet.—The seventeenth annual session of the Tri-State Medical Society of the Carolinas and Virginia was held in Charleston, S. C., February 17 and 18 under the presidency of Dr. Edward C. Register, Charlotte, N. C., and the following officers were elected: president, Dr. James H. McIntosh, Columbia, S. C.; vice-presidents, Drs. Gottlob A. Neuffer, Abbeville, S. C.; Carl V. Reynolds, Asheville. N. C.; and Beverley R. Tucker, Richmond, Va.; and secretary-treasurer, Dr. Rolfe E. Hughes (reelected), Laurens, S. C.

Service May Not Have Expert Engineer.—Controller Downey of the Treasury has ruled that the office of sanitary expert engineer for the Public Health Service may not be created nor salary paid under the existing law. The cause of this action was the opinion expressed by Surgeon-General Blue that such expert assistants were needed in the prevention of interstate spread of diseases, including typhoid fever and bubonic plague. General Blue also indicated that many states and municipalities are willing to undertake work for the eradication of disease liable to interstate spread, provided they can receive experts' advice from the Public Health Service, and this advice only a sanitary engineer would be qualified to give.

Bequests and Donations.—The following bequests and donations have recently been announced:

Home for Destitute Crippled Children and Mary Thompson Hospital for Women and Children, Chicago, each $100,000 by the will of Alexander A. McKay.

Columbia University, for research in the cause, prevention and cure of cancer, $100,000; Hebrew Orphan Asylum, New York City, Stoney Wold Sanatorium, Loomis Sanatorium and New York Skin and Cancer Hospital, each $10,000; Mt. Sinai Hospital, New York City, $20,000, one-half of which is for the dedication of two beds in memory of the testator's parents; Presbyterian Hospital, $5,000, and also $7,500 for the endowment of a bed in memory of Margaret Carson Rowan; St. Luke's Hospital, Montefiore Home, and Hospital Saturday and Sunday Association, $5,000; German Hospital and Crippled Children's East Side Free School, New York City, each $2,500, by the will of Emil C. Bondy, New York City.

National Committee on Mental Hygiene, a donation of $44,500 by Mrs. Elizabeth Milbank Anderson and one of $40,000 by Mrs. William K. Vanderbilt.

Rockefeller Foundation, an appropriation to retain the services of medical director Dr. Thomas W. Salmon, for three years.

New York Foundling Hospital, $2,000 by the will of Rosanna M. Nagle.

Howard Hospital, Philadelphia, $5,000 to establish a free bed to be known as the Annie E. Ulmer bed to be devoted to the use of female patients.

Philadelphia Hospital for Women, $1,000 by the will of Annie E. Matthew.

Presbyterian Hospital, Philadelphia, $5,000 by the will of Anna E. Teal.

Germantown Hospital, $5,000 by the will of Louisa C. Rodney.

FOREIGN

Statue of Florence Nightingale.—The cable brings word that a statue of Florence Nightingale was unveiled at London, February 24. It is the first instance in which a statue of a woman, aside from royalty, has been erected publicly in London. The figure bears a lamp in the right hand. It forms a part of the Crimean memorial group in Waterloo place, the cost of which was provided for by small subscriptions.

Orthopedic Hospital and Training School Inaugurated at Vienna.—Prof. H. Spitzy is at the head of this new institution for cripples, which comprises a dispensary, a hospital and a training school, each in a separate building, formerly a school building. There are beds for 1,000, and 600 are already filled. The training school has facilities for teaching twenty-one trades, and arrangements are already under way to enlarge its quarters.

Deaths in the Profession Abroad.—L. Laquer, a leading neurologist and medicolegal expert, died at Frankfurt a.M., aged 57. His works on feeble-minded children, kleptomania and electrotherapy of nerves are particularly well known.—— J. Arnold, professor of pathologic anatomy at the University of Heidelberg, died recently, aged 79. Among the special subjects studied by him were inhalation of dust and the anatomy of the eye in the embryo.——Prof. Robert von Olshausen, the senior member of the medical faculty of the University of Berlin and honorary president of the national society of obstetricians and gynecologists, died February 2, aged 80. He was one of the leaders in modern gynecology and its publications.

WAR NOTES

Death of Dr. Kara.—Dr. John M. Kara, one of the three physicians in the Bohemian-American Red Cross unit sent to Servia, died recently of typhus fever. He was a native of Chicago, a graduate of the University of Illinois Medical Department in 1910.

Belgian Field Hospitals Need Aid.—The wife of Antoine Depage, the famous surgeon of Belgium, is visiting in America as the personal representative of the king and queen of Belgium, to seek financial and other aid for the field hospitals of the Belgian Red Cross. There is a woful lack of ambulances and field hospital appliances and personnel, and the wounded have suffered terribly from the lack of proper accommodations.

Disease Carriers Found.—Lieut.-Col. John T. Fotheringham, Toronto, chief surgeon of the Second Canadian Expeditionary Force, has discovered five meningitis carriers among the members of one of the kitchen fatigues, although the carriers themselves were not suffering from the disease. To further minimize the danger of the disease, Colonel Fotheringham has ordered 2,000 doses of meningitis prophylactic serum to immunize the men against the disease. There have been eight cases of meningitis thus far at the exhibition camp, with one death.

Medical Committee on Food for the Populace in Germany. —Kirchner is at the head of a committee, mainly of physicians, appointed to educate the public in economy of foodstuffs. Addresses and demonstrations are to be held, medical men teaching the principles of rational diet, and trained cooks giving demonstrations in the school buildings. Pamphlets and circulars are also being published to aid in the campaign for economy. The committee includes also representatives from national women's organizations, insurance societies and others.

Nostrums and the War.—The German authorities have been constrained to issue a warning against certain donations to the troops which the heedless buy, on the manufacturers' claims, to send to friends at the front. One article in particular is specified, "the so-called Microcid Tablets, manufactured for our soldiers in the field" and claimed to be a "sure protection against cholera, typhus, dysentery, etc., as it clears the water of germs in two minutes." A warning is also issued against certain portable filters that are advertised as suitable gifts for the men in the trenches. "Another article in regard to which a warning has been issued, is Eusitin, which is alleged to keep up the strength when food is not available. This marvellous action is ascribed to the content of 0.2 gm. dry extract of mallow in each box."

Red Cross Activities.—Several large shipments of hospital supplies and clothing have been started across the Atlantic by the American Red Cross in the last few days. Thirteen of the seventeen light motor ambulances contributed by Yale and Harvard universities have been shipped and the remainder will be sent very shortly. Of these, four each are consigned to the French, German, Austro-Hungarian and British Red Cross and one ambulance is to go to the Belgian Red Cross.——To the British Red Cross, 2,000 pounds of chloroform, 15 bales of blankets and 11,000 pounds of absorbent cotton have been sent.——Two consignments of hospital and miscellaneous non-combatant relief supplies were sent to France by the American Red Cross on the steamer *Rochambeau*. One of these shipments consists of 255 boxes including 9 cases of tetanus, typhoid and diphtheria antitoxin and is consigned to the American Relief Clearing House in Paris and the second consignment is

addressed to Dr. Robert Fitch, in charge of a large military hospital in Yvetot, France.——The American Red Cross has also delivered to the Russian-American line in New York for shipment on the steamer *Kursk* as soon as navigation opens, 150 cases of hospital and non-combatant relief supplies for Poland, addressed to Warsaw, 189 cases of medical and surgical supplies for the Russian Red Cross at Petrograd and 40 cases for the American Hospital, Petrograd, which has been fitted out by the American Red Cross.——The Mayor of Pau, where two American Red Cross units have been stationed for several months, pays eloquent tribute to the work of the surgeons and nurses attached to the units and extends to the American Red Cross the official expression of the gratitude of the municipal authorities of Pau, the wounded and of the medical fraternity of the city.

Aid for Belgian Physicians.—It will be noticed that six instances are mentioned below and others have been published of the interest of medical societies in this cause. This should be encouraged. There are thousands of physicians who would gladly give a small sum—say a dollar or two—all they can afford, but who do not feel like sending such a small amount, and therefore send none. We suggest that officers of county societies consider whether they cannot aid in this humanitarian work.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession for the week ending Feb. 27, 1915, lists the following contributions:

The Monmouth Medical Club, Monmouth, Ill.	$ 10.00
The Adams Co. Med. Soc., Quincy, Ill.	42.00
Dr. Charles H. Smith, Uniontown, Pa.	25.00
Dr. Frederick J. Walter, Daytona, Fla.	10.00
Dr. Austin C. Brant, Canton, Ohio.	5.00
Dr. William D. Byrne, Chicago, Ill.	5.00
Dr. Simon Levin, Lake Linden, Mich.	5.00
Dr. Miles F. Porter, Fort Wayne, Ind.	5.00
Dr. Joseph L. Duncan, Pittsburgh, Pa.	10.00
Dr. James M. Patton, Vandergrift, Pa.	1.00
Dr. Neri B. Williams, Perkasie, Pa.	1.00
Dr. Wilson F. Phillips, Dorchester, Mass.	5.00
Dr. Donald C. Balfour, Rochester, Minn.	25.00
Dr. Austin Flint, Jr., New York, N. Y.	25.00
Dr. Evan T. Steadman, Hoboken, N. J.	10.00
Dr. John B. Nichols, Washington, D. C.	10.00
Dr. Hermann G. Klotz, New York, N. Y.	5.00
Dr. George P. Coopernail, Bedford, N. Y.	5.00
Dr. Kay L. Sanes, Pittsburgh, Pa.	25.00
Dr. Herman F. Vickery, Boston, Mass.	25.00
Dr. Henry H. Atkinson, Fordyce, Ark.	5.00
Dr. Archibald MacLaren, St. Paul, Minn.	25.00
Dr. Helen G. Putnam, Providence, R. I.	5.00
Maricopa Co. Med. Soc., Phoenix, Ariz.	25.00
Dr. John D. S. Davis, Birmingham, Ala.	5.00
Dr. James M. Popp, New Castle, Pa.	5.00
Dr. Horace Binney, Boston, Mass.	5.00
Dr. Warren Wilson, Northfield Minn.	5.00
Dr. Gibbs Biscoe, Pendleton, Ark.	5.00
Dr. Eleanore F. Boulton, Philadelphia, Pa.	5.00
Dr. Orr L. Perry, Elkins, W. Va.	2.00
Dr. John P. Gette, Bellville, Pa.	2.00
Dr. W. H. Witt, Nashville, Tenn.	5.00
Salt Lake Co. Med. Soc., Salt Lake City, Utah.	50.00
New York Medical Union, New York, N. Y.	100.00
The Montgomery Co. Med. Soc., Dayton, Ohio.	304.50
Receipts for week ending February 27	$ 807.50
Previously reported receipts	3,579.00
Total receipts	$4,386.50
Previously reported disbursements	$3,575.00
Disbursements for week ending February 27, 352 boxes of food at $2.30	809.60
Total disbursements	$4,384.60
Balance	$ 1.90

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, **Pa.**

LONDON LETTER

LONDON, Feb. 11, 1915.

The War

THE PREVENTION OF DISEASE

This is the first war in which we have had an organized sanitary service. It was established some years ago and has gradually been perfected. The importance of disease in war is shown by the fact that in our Napoleonic wars only 3 per cent. of the deaths were due to wounds, 97 per cent. being due to disease. So far the amount of illness has been very small. The greater part has been due to wet and cold, which is easily explained by the long hours in wet trenches. The army medical department has issued a small leaflet to officers explaining the steps that should be taken to prevent frostbite. This condition is three times as common among the men as the officers, and is presumably due to the fact that the latter have better boots, leggings and equipments generally. Cases of typhoid fever are very rare and have occurred almost entirely among the uninoculated. Hence opinion in favor of making inoculation compulsory is growing, and Lord Kitchener has gone so far as to curtail the leave of men who are uninoculated. Of course an outcry has been made by the antivaccinationists and antivivisectionists against what they call the "terrorizing" of men who object to inoculation. Speaking in Parliament on behalf of the government, in reply to these cranks, Dr. Addison pointed out that whereas in the South African war when inoculation was in its infancy we had 58,000 cases of typhoid fever, we have had only 421 up to the present in this war.

THE SCARCITY OF SYNTHETIC DRUGS

As stated in previous letters, a beginning has been made in manufacturing some of the more important synthetic drugs for which in the past we have been almost entirely dependent on Germany. At the same time attention has been called to the fact that we are perhaps far better without the enormous and constantly increasing number of synthetic drugs which Germany produces. At the Pharmaceutical Society, Mr. C. A. Hill read a paper in which he said that if a German chemical factory is producing on a large scale a certain chemical compound, and in the manufacture of that compound a by-product is obtained for which there is no obvious outlet, the research staff and ancillary to that laboratory factory sets to work to find an outlet. The by-product may be put on the market and boomed as such, or it may serve as the raw material for the preparation of some other substance. In the *British Medical Journal*, reference is made to a recent meeting of the Newcastle Section of the Society of Chemical Industry. Mr. N. H. Martin expressed the opinion that the success of certain synthetic drugs, such as antipyrin, was responsible for the lowering of the scientific value of German chemical work in recent years, and quoted the following passage from an address he delivered in 1899: "Hardly a month passes but that some new substitution compound with a trivial name to indicate its alleged medicinal properties, and a scientific name intended to suggest profound research, is introduced to English medicine. They come with laboratory and medical reports attested by men with university degrees, couched in language calculated to deceive the very elect, but the touchstone of practical trial reveals how science has been prostituted to commercial ends, and the substances one after the other, passed to oblivion."

THE INCREASED COST OF FOOD

In Parliament a motion regretting the rise in price of the necessaries of life, and calling on the government to endeavor to prevent this consequence of war, was brought forward by a labor member. The premier, Mr. Asquith, in reply pointed out that the rise was substantially below the level which the most sober-minded and best-informed judgments in the country would have apprehended or anticipated from a war involving almost the whole civilized world. Moreover, the level of prices does not exceed and in many respects falls short of the level which most of those who were now living have experienced in times of peace. Taking the four necessaries of life, wheat is now 72 per cent. higher than at the corresponding time last year; British meat, 6 per cent.; foreign meat, 12 per cent.; sugar, 72 per cent. (but as the price was abnormally low last year the increase is only 43 per cent. on the average of the last three years); and coal, 15 per cent. From 1871 to 1875, after the conclusion of the Franco-German war, with the exception of coal, everything in this list was dearer than it is now, and even up to 1885 prices were no higher than they are now. On the other hand, money wages were from 15 to 20 per cent. lower than they are now. Further, as a result of the war there has not been so much anticipated widespread unemployment. The large expenditure of the government in various branches of industry, and the liberal allowances to the wives of men who are fighting, have enabled the working classes to consume nearly on the same scale as before the war. The rise in the price of wheat is due to two causes—diminished supply and increased demand. The former is not entirely due to the war. There has been a failure of the Australian crop, and the high prices in India have led to a temporary embargo on the export of wheat. The Argentine crop, owing to bad weather, is three weeks late in going to the coast. By the closing of the Dardanelles, the war has cut off the Russian crop. The depredation of crops in Belgium and Northern France and the greatly reduced production in the Balkans are other causes. Increased consumption

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is due to the fact that men in the armies eat more than they did in civil life. Another cause of the rise is an increase of freights and speculation in the Chicago and New York markets. According to the premier, no army in the world has ever been so well fed as the British army operating in France, and in no respect has it been better supplied than with meat. The government in the earliest stages of the war purchased on a large scale the available stocks of sugar in the world, and now has sufficient to last many months, and the price of sugar in this country is approximately the same as in the United States. Our policy has prevented purchase by this country directly or indirectly of enemy sugar, and restricted the sale by Germany and Austria of their surplus stocks. The rise in the price of coal is partly due to increased freights, and partly to a diminished volume of labor available in the mines in consequence of enlistment. There is also a shortage of transport labor and seamen in consequence of enlistment and the removal of enemy aliens from our shipping service. The government is doing everything possible to facilitate transport. There is, of course, a shortage of shipping because of the disappearance from the ocean of the whole of the merchant service of Germany and Austria, and also because the Admiralty is employing for war transport a fifth of the British tonnage. To the disappointment of the Labor Party, Mr. Asquith declined to take any steps for fixing maximum prices. Speaking not as "an old-fashioned political economist" but as a practical man, he did not believe in such steps. In Germany they had the most disastrous consequences.

VOLUNTARY HOSPITALS AND WOUNDED SOLDIERS

The Council of the British Hospitals Association, 14 Victoria Street, Westminster, has been considering the varying conditions under which the voluntary hospitals are receiving wounded soldiers for treatment. Arrangements which the War Office has made as to payment vary considerably; for instance, few, if any, of the hospitals in London have asked for any payment from the government, while most of the provincial hospitals expect to be paid at rates which vary from 50 cents to $1 per patient per day. It is proposed to apply to the War Office to establish a uniform scale of payment with all the voluntary hospitals.

The Danger of Prescribing Over the Telephone

An unfortunate mistake illustrates the danger of prescribing poisonous drugs over the telephone. A man was in a nursing home preliminary to operation. His physician telephoned to a dispenser whom he employed to prepare a solution for hypodermic injection containing one seventy-fifth grain of physostigmin (eserin) sulphate. The dispenser mistook the direction and prepared a solution containing 0.75 grain (sixty times too much). Soon afterward he discovered his mistake and communicated with the physician, who telephoned to the nursing home too late to prevent the administration. He directed an antidote to be given and motored to the home only to find the patient dying. There is one consolation in the case: the patient was suffering from a malignant disease.

PARIS LETTER

PARIS, Feb. 11, 1915.

The War

FROZEN FEET IN THE ARMY

The number of men sent from the front to the hospitals with the diagnosis of frozen feet is continually increasing. Lesions of all degrees, varying from simple blisters to total gangrene of the toes or even of the entire foot, are seen. This seems rather surprising since during this winter the temperature in our country has rarely fallen below zero C. According to Dr. Témoin of Bourges, who has made an interesting report on this subject to the Académie de médecine, many of the cases are not really cases of freezing, being produced less by the action of the cold than by the constriction of the feet in a shoe that is too tight, aided by the impairment of the circulation of the leg produced by the bands around the calves worn by many of our soldiers. Dampness aggravates the condition, producing a maceration of the tissues of the foot and making the shoes shrink still more. The low temperature favors vasoconstriction and the circulation becomes constantly slower. In support of this view, Témoin cites the example of the Russian and German troops who wear loose, waterproof boots and among whom, although they fight under the same conditions as our soldiers, frozen feet are not prevalent.

The result, to be sure, is the same whether the foot is frozen or the circulation stops, but practically the distinction is important. While one cannot prevent the effects of freezing, which is generally produced rapidly, it is not so with respect to constriction of the leg and the foot, the effects of which are produced slowly. None of the men hitherto sent to the hospitals after the diagnosis of frozen feet had been affected before the fourth day of sojourn in the water. The preventive remedy consists in the elimination of the band around the calf, loosening the lacings of the shoe and the employment of greasy material—oiled paper or greased socks—to cover the foot all over during the combatants' stay in trenches filled with water.

Témoin mentions a chief of service who, by merely telling his men in the trench to take off their shoes twice a day for a quarter of an hour, lowered the proportion of frozen feet. The academy agreed with Dr. Témoin's findings and voted unanimously to transmit his paper to the minister of war.

Dr. J. A. Sicard, agrégé professor at the Faculté de médecine de Paris, read a paper on the same subject before the Société médicale des hôpitaux de Paris. Having had the opportunity of observing a large number of cases of frozen feet, he remarked that the left foot was more frequently affected than the right. He attributed this circumstance to the fact that, whether seated or standing, right-handed persons, who are in the immense majority, automatically and unconsciously make more numerous and more extensive movements with the right foot than with the left. As predisposing causes besides the bands around the calves, Sicard mentions plantar hyperidrosis, chilblains of the toes and varicose condition of the legs.

As a prophylactic measure, Sicard recommends protecting the sock itself from contact with the cold by wrapping it with wool, etc. Greasing the foot coverings liberally also gives good results; likewise the interposition of strips of paper between the socks and the skin. As a palliative treatment, Sicard recommends the use of a mixture of 80 c.c. of alcohol 70°, 20 c.c. of ordinary glycerin and 1 c.c. of tincture of iodin. Gauze wet with this mixture is placed on the affected portions and covered with wadding lightly tied in place.

THE SOLDIERS' RATION OF FOOD IN WAR TIME

At one of the last sessions of the Académie des sciences, Dr. Armand Gautier, professor of chemistry at the Faculté de médecine de Paris, reported some interesting details in regard to the work of the committee instituted by the minister of war in 1907, for the study of soldiers' rations. As a standard for comparison, the committee took the normal ration of a laborer at hard manual work. After numerous investigations it was recognized that in a moderate climate, a quantity of food sufficient for the development of 4,133 calories was necessary per capita per day. In cold climates like that of Russia, 100 calories more should be added. The present food ration is equivalent only to 3,189 calories. During peace and even at the outbreak of the war, there was nothing alarming in the situation. Later the deficiency has been partly made up by adding to the ordinary ration of the troops 100 gm. of bread, 24 gm. of coffee, 30 gm. of sugar and 10 gm. of fat. This amounts to 3,900 calories. Dr. Gautier concludes that to obtain the number of calories corresponding to the ideal alimentary regimen, it would be necessary to supplement the ration further by 30 gm. of fat, 150 of bread and 50 centiliters of wine.

THE USE OF OATS FOR HUMAN FOOD

At the time of mobilization of the army, Captain Moreau submitted to the military authorities and to the central farmers' organization of France an important work on this subject which has become of special interest through later events. In comparison with barley and rye, oats have a superior nutritive value, as shown by the following figures:

	Oats	Rye	Barley
Protein	12.68	7.52 to 9.91	7.98 to 13.27
Fat	5.90	1.04 to 1.36	1.28 to 2.20

This shows the superiority of oats over the cereals ordinarily employed in France. Captain Moreau recommends using oats in the form of porridge. An officer has succeeded in preparing an oat biscuit which is easily transportable and much superior in flavor to the ordinary war bread. It is of considerable nutritive value. Experiments were made on groups of twenty soldiers undergoing particularly hard training. In each case there was considerable increase of weight and muscular force. It has therefore been decided to regard the oat crops in invested places as food material for human beings.

A MISSION OF THE JAPANESE RED CROSS TO PARIS

A mission of the Japanese Red Cross which left Yokohama December 16, last, has arrived in Paris. It is headed by Dr. H. Shiota, includes thirty-one persons and is accompanied by fourteen carloads of supplies, amounting to between 130 and 140 tons. Other missions have already been sent by the Japanese Red Cross into England and Russia, respectively.

Personal

During the session of February 2, the Académie de médecine elected as associate member Prince Albert of Monaco, who is already a member of the Académie des sciences. The Prince of Monaco has given much encouragement to medical and physiologic studies, apart from his personal work in oceanography in which physiologic applications have had a large share. At the preceding session, the academy unanimously elected Dr. Laurent of Brussels as foreign correspondent.

BERLIN LETTER

BERLIN, Feb. 2, 1915.

The War

CONSERVATION OF THE FOOD SUPPLY

The newest regulation of our government concerning our nutritional condition requires a seizure of all grain and flour, and provides that communities shall arrange to distribute each week a limited ration of bread and flour to each citizen. Altogether, 2 kilograms of bread and flour per capita per week are permitted. The previous conditions with reference to the composition of white bread and rye bread remain undisturbed. That the population can easily abide by this restriction is evident, for no one has need of more than 2 kilograms of bread and flour and other flour products. Even if such a limitation may not be easy for those accustomed to luxury and fond of pastry, they will very soon accustom themselves to it. The matter of chief importance is that in this way, without doubt, the present stores of cereals will last until the next harvest, and in this way the starvation plan of England will be foiled. The leading English papers admit this to be their plan, at the same time taking the opportunity to pronounce high praises on the remarkable capacity of the German people for organization.

THE WOUNDED

Since our offensive has diminished in the west, especially in Flanders, and probably also on account of greater prudence in the attacks, the number of the wounded among our soldiers has grown less. Letters have been received in the last few weeks from six different places on the western front in which physicians speak of the lack of work. Naturally, not the slightest sympathy can exist for these unemployed physicians.

THE EXPOSITION ON THE CARE OF THE WOUNDED

In the exposition on the care of the wounded and sick which has had a very large attendance and for that reason has completely fulfilled its purpose, interesting lectures have been delivered by various physicians. Among others, Holländer of Berlin, professor of medical history, gave a lecture on the history of sanitation.

A HISTORY OF THE CARE OF THE WOUNDED IN WAR

Holländer said that in prehistoric times it is unlikely that there was a medical service. The lower class of medical servants practiced surgery, while for the treatment of diseases sent by the gods, a class of priests developed who enriched themselves by traffic in amulets in addition to profit derived from the sacrifices for the deities. In early antiquity, as can be seen from the Iliad and the Odyssey, the treatment of the wounded depended on the help of comrades. There was a great mortality from wounds. In the Old Testament surgical treatment on the field of battle is not indicated. The Greek soldiers, after a battle, hastened to the shrines of Aesculapius. Up to the decline of ancient civilization, the life of the individual was esteemed of little value, and hence arose an inferior conception of the medical profession. The Romans regarded it as a sordid business and left it to slaves and women. In the year 219 B. C., the first Greek surgeon came to Rome, and it is first among the Caesars that we find systematic military medical service. Still the soldiers gladly permitted themselves to be treated in the temple of the god of healing, Aesculapius, whose popularity, according to a polemic article of Origen, raised the question whether Christ or Aesculapius was the real god of healing. Hospitals are only occasionally noted in the history of antiquity. Thus it is said in the Bible that the leprous king, Uzzia, spent the rest of his life in a hospital. We know of a military hospital in the times of the Roman Caesars through excavations at Neuss which, like archeology in general, with its excavations of medical votive tablets and instruments, gives us better ideas of the medical military service than the statements of authors. The German people had those wounded in battle treated by their wives, who remained in their city of wagons behind the line of battle. Charms, especially mandrake root, played a great rôle. In the early middle ages, the women of the castle, skilled in the healing art, took up the care of the wounded in the battles of the Guelphs and the Hohenstaufen. The need of surgeons was first markedly felt when great armies like those of the Crusades were brought together so that epidemics, wounds and hunger left only 50,000 out of the 750,000 men of Gottfried von Bouillon to reach Jerusalem. This lack led the Crusaders to help themselves by founding orders of knights for the care of the wounded and sick. Indeed, Richard the Lion Hearted had a hospital ship accompany his troops to the coast of Palestine. At this time, also, the advance of medicine began in the University of Salerno, where distinguished surgeons were employed whose writings we know and whose methods are exhibited in pictures from their works; but it was the development of anatomy under Vesalius, whose fourth centenary was celebrated a short time ago, and the introduction of firearms that brought about an advance in military surgery. Three questions interested the surgeons in those times: the extraction of bullets, the poisoning of wounds from the gases from powder, and the checking of hemorrhage, which Ambroise Paré solved by tying the vessels. The establishment of an organized military medical service occurred first with the introduction of standing armies. Under King Frederick I of Prussia, the Charité Hospital was erected as the first garrison hospital and the medical college was established, and in 1795 the Pepiniere (nursery, professional school), which is now the Kaiser Wilhelm's Academy for the Education of Army Surgeons, was established.

WAR AND THE POPULATION

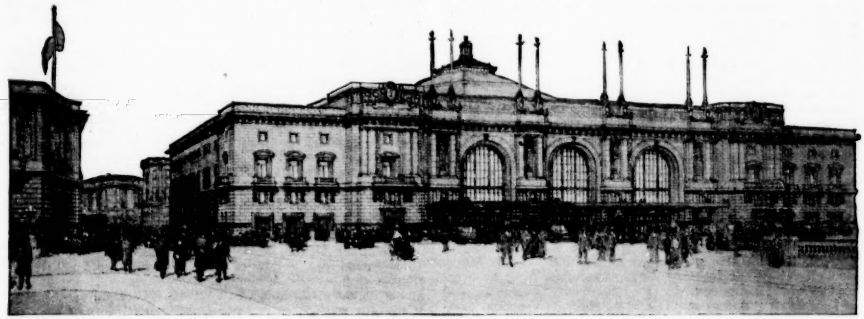
Professor Schwiening, surgical historian, reporter of the war office, and associate editor of the *Deutsche medizinische Wochenschrift*, recently spoke of the influence of the war on the movement of population. The influence which the direct losses, that is, the deaths as a result of wounds or sickness, have exercised in recent times on the number of the population is relatively small. Even in the war of 1870-1871 the losses amounted to only 1 per cent. of the entire population of Germany. As opposed to the direct losses, the indirect loss of population is essentially larger, since wars exercise an especial influence on those factors which are fundamental for the further development of a people, particularly on marriages and births on the one hand, and on the general mortality on the other. Every great war reduces at first the number of marriages to a considerable degree. The diminution in the years of war, however, is followed in later years by so much more marked increase of marriages that the loss is again compensated. Still greater is the diminution of births as a result of the war which cannot be fully explained by the diminution of marriages and the absence of many men, but is also to be referred to psychologic hindrances among those who remain behind. Here also there follows in the years after the war a considerable increase, so that the loss is quickly replaced. Finally, the entire mortality, in many wars, is markedly increased by the fact that on account of them, great epidemics occur in the civil population and demand many victims. In many wars of previous centuries, these losses through epidemics have actually been much greater than the essential losses from the war, and have led to the complete depopulation of many cities. A peculiar phenomenon is the increase of emigration which almost always makes itself evident after great wars, and may have its basis in the political and economic and personal changes which every war involves. What influence the present war will exercise on the population and on the movement of population of the German Empire cannot yet be predicted. It may be assumed with certainty that the unfortunately marked reduction in the birth rate, which began in Germany about ten years ago and could not be arrested by any of the numerous measures directed against it, will be checked so that after the war another marked increase of births will set in. If that is the case, the war, in spite of the great sacrifice of human life, will be a blessing for the development of our entire population.

Association News

THE SAN FRANCISCO SESSION

Exposition Memorial Auditorium Will Accommodate All the Meetings with the Exception of the General Meeting

The annual session to be held in San Francisco next June will be unique in that all the meetings—the House of Delegates, the entire Scientific Assembly (except its first meeting, the General Meeting), the Registration Bureau, the Scientific Exhibit and the Commercial Exhibit—will be held under one roof. The Exposition Memorial Auditorium has been placed at the disposal of the Association for the week of the session, and provides ample accommodations for all the section meetings. The Memorial Auditorium occupies an entire block and forms part of the civic center. It, the city hall and other municipal public buildings are grouped and form an impressive area. The Auditorium itself is bounded by Grove, Larkin, Hayes and Polk streets. The group of buildings comprising the civic center is at a central point and is easily accessible from all sections of the city. Market Street, a wide thoroughfare leading to the ferry and steamship terminals on the water front, is directly adjacent. From the western boundary of this civic center, the Van Ness Avenue Municipal Street Railway leads directly to the exposition. The trip from the Auditorium to the exposition ground will take less than fifteen minutes.



The Exposition Memorial Auditorium. All the meetings—the House of Delegates, the entire Scientific Assembly (except the General Meeting), the Registration Bureau, the Scientific Exhibit and the Commercial Exhibit—will be held in this building.

The Memorial Auditorium, the building and equipment of which cost in round numbers $1,250,000, will be given to the city of San Francisco at the close of the exposition as a permanent memorial. This building has eleven halls, each with a seating capacity of from 400 to 10,000 people. In addition, there are nineteen rooms which will accommodate from thirty to 125 people. Rolling partitions on the third and fourth floors permit dividing some of the larger halls so that it is possible to provide fourteen halls, each with a minimum capacity of 250. By the use of these rolling partitions the Auditorium can at the same time provide for twenty-one meetings with an attendance of from 250 to 10,000, and will have still in reserve nineteen committee rooms which can accommodate from thirty to 125 people. The building is four stories high, with a large auditorium extending throughout its entire height in the central portion. Around this auditorium are wide corridors on all sides except at the rear where the entrance is directly from the street. Around three sides of the Auditorium there is a large balcony. Ample exits from the balcony to the corridors are provided at the different floor levels, and wide stairways extend from these corridors to the main floor. In addition, elevators connect the different floors of the building. A skylight at the top of the pyramidal roof furnishes light to the interior, and in addition, electric lights on the ceiling and walls give whatever necessary artificial light may be desired.

The main hall of this auditorium will be devoted to the Registration Bureau, together with the postoffice and information desks, and the commercial exhibits.

The wide corridor or foyer along the front of the building on the first floor will house a popular public health exhibit, part of the general plan for commemorating the service medical science has rendered. The corridor on the second floor, immediately above, will be used for the more technical portion of the scientific exhibit. On either side of this auditorium, and separated from it by wide corridors, are wide convention halls. These halls on the different floors of the Auditorium will be assigned to the scientific sections so that, as has already been stated, all the section meetings during this annual session will occur under one roof. The nearest approach to this convenient arrangement which the Association has been able to provide was in 1913, when the halls of the University of Minnesota permitted holding all the sections on the campus of the university. Much satisfaction was expressed by the Fellows who attended the Minneapolis meeting because all the Sections were accommodated in comfortable and commodious halls situated one near to the other. In San Francisco, this plan is followed even more fully.

Attention is again called to the arrangements which have been completed, whereby comfortable and reasonably priced quarters may be assured those who go to San Francisco. The subcommittee on hotels of the Local Committee on Arrangements states that the Hotel Bureau will be able to locate those Fellows, who request it, in hotels adjacent to the Civic Center in which the Exposition Memorial Building is situated. This Bureau, as previously announced (THE JOURNAL, February 20, p. 680, and February 27, p. 758), is operated in connection with the Panama-Pacific International Exposition and the San Francisco Hotel Association. A deposit of $5 will guarantee rooms to all those who make their reservations in advance. There is every promise of great convenience and pleasant arrangements for the annual session at San Francisco.

The Truth.—Perhaps there is one function of the scholar which should be cherished above all others. It is to discover and tell the truth. In spite of our many and increasing agencies for disseminating information, it seems just as difficult as ever to get at the truth about any given subject. It is not always palatable and has occasioned great disturbances. Many scholars have been compelled to fight and suffer for what they firmly believed to be the truth. Even to-day the scholar's truth is not always acceptable.—Theobald Smith, *Boston Med. and Surg. Jour.*

Marriages

CLARENCE WILLIAM ANDERSON, M.D., Duluth, Minn., to Miss Lovena Rasmussen of Mabel, Minn., at Minneapolis, February 10.

GROVER C. BULLINGTON, M.D., Nokomis, Ill., to Miss Margaret Christian of St. Louis, Mo., at Springfield, Ill., February 17.

JOSEPH E. G. WADDINGTON, M.D., to Miss Antoinette Marie Margraf, both of Detroit, at Windsor, Ont., February 15.

LOUIS ROBERT MELNIKOFF, M.D., Chicago, to Miss Mae Arkin of Hammond, Ind., February 23.

CRESWELL T. PIGOT, M.D., Roundup, Mont., to Miss Alice Lowry of Butte, Mont., February 10.

JAMES H. FONGER, M.D., Gary, S. Dak., to Miss Lucille Eakins, recently.

Deaths

Homer Gibney, M.D. Atlanta (Ga.) Medical College, 1893; a member of the Medical Society of the State of New York and New York Academy of Medicine; professor of orthopedic surgery in, and secretary of the New York Clinical School of Medicine; assistant surgeon to the Hospital for Ruptured and Crippled, New York; consulting orthopedic surgeon to the Italian Hospital, Somerville, N. J., and to the Rockaway and Tarrytown hospitals; orthopedic surgeon and president of the medical board of the West Side German Dispensary, New York City; one of the best-known orthopedic surgeons of New York; died at his home in that city, February 16, aged 55.

Andrew Sabine, M.D. Jefferson Medical College, 1856; the oldest practitioner of Weston, Kan., surgeon of U. S. Volunteers during the Civil War; mayor of Garden City, Kan.; at one time a member of the State Board of Health; for several years a member of the board of education and for more than twenty years local surgeon for the Sante Fe system; died at his home in Garden City, February 14, aged 84.

James Calhoun Brobst, M.D. Bellevue Hospital Medical College, 1867; assistant surgeon of the Forty-Sixth Pennsylvania Volunteer Infantry during the Civil War; superintendent of the Lititz Springs (Pa.) Sanitarium; chief burgess of Lititz and president or director of many of the local commercial activities; also a druggist; died at his home in Lititz, Pa., February 15, from senile debility, aged 70.

Hugh Young Brady, M.D. Western Pennsylvania Medical College, Pittsburgh, 1889 (license, Fayette County, Pa., years of practice, 1881); a veteran of the Civil War; for forty-five years a practitioner of Ohiopyle, Pa., and a member of the school board and common council; died at his home in that place, February 14, from cerebral hemorrhage, aged 74.

Omar Alpha Flint, M.D. University of Vermont, Burlington, 1885; formerly superintendent of schools of Billerica, Mass.; a member of the Massachusetts Medical Society; at one time superintendent of the Westboro Reformatory and a member of the staff of the Tewksebury State Hospital; died at his home in Dracut, Mass., February 16, aged 71.

Francis Hustace, M.D. College of Physicians and Surgeons in the City of New York, 1874; a member of the Medical Society of the State of New York, while suffering from an attack of vertigo, February 17, fell from a window in his apartment on the twelfth floor of the Heimscott Building, New York City, and was instantly killed, aged 64.

Edward G. Husler, M.D. Jefferson Medical College, 1881; of Carnegie, Pa.; vice-president of the Carnegie Trust Co., Pittsburgh; a director of the First National Bank of Carnegie and one of the largest real estate owners in the Chartiers Valley; died in the West End Hospital, Pittsburgh, February 14, from heart disease, aged 61.

John Saxton Deemy, M.D. Medico-Chirurgical College of Philadelphia, 1890; a Fellow of the American Medical Association; one of the organizers of the Logan County (Ohio) Medical Society and local surgeon of the Big Four system at Bellefontaine, Ohio, died at his home in that place, February 13, from pneumonia, aged 48.

Judson Giles Kilbourn, M.D. New York University, New York City, 1884; a Fellow of the American Medical Association and a well-known surgeon of central New York; consulting surgeon to St. Elizabeth's Hospital, Utica, and surgeon to St. Luke's Hospital, Utica; died at his home in that city, February 16, aged 55.

James Joseph Scannell, M.D. Tufts College, Boston, 1905; of Brighton, Boston; director of the bacteriologic laboratory of the Boston Board of Health; formerly visiting physician to St. Mary's Infant Asylum; died in Carney Hospital, Boston, February 19, from pneumonia following an operation for gastric ulcer, aged 39.

Louis J. P. Des Rosiers, M.D. University of Victoria College, Coburg, Ont., 1872; medical health officer of Montreal in 1884; a member of the city council of Montreal for several years; died at his home in that city, February 12, from internal injuries sustained in a fall three weeks before, aged 78.

Albert Samuel Cooke, M.D. College of Physicians and Surgeons in the City of New York, 1901; of Brooklyn, who had had seven years of hospital work in Germany and who went to Valemova, Servia, in November, 1914, in the service of the Servian Red Cross; died recently in Servia, aged 36.

James K. Donoghue, M.D. Georgetown University, Washington, D. C., 1909; for two years a member of the staff of the Central Islip State Hospital, Long Island, N. Y., but for the last year a practitioner of Rochester, N. Y., died at his home in that city, February 14, from pneumonia, aged 28.

Francis Elias Whitlock, M.D. Jefferson Medical College, 1914; a member of the house staff of St. Alexis Hospital, Cleveland; for several years superintendent of the water works at Fostoria, Ohio; died at the home of his parents in Urbana, Ohio, February 8, from tuberculosis, aged 32.

James Ashley Bangs, M.D. University of Vermont, Burlington, 1884; of Iron Mountain, Mich., and physician for the Pewabic Company; for four years a resident of Denver; died at his home in that city, January 28, from tuberculosis, aged 59.

Russell Henry Wheeler, M.D. Northwestern University Medical School, Chicago, 1898; for many years a practitioner of Rapid City, S. Dak.; died at a hospital in Leavenworth, Kan., February 11, from cerebral hemorrhage, aged 43.

Adam B. Simmons, M.D. Eclectic Medical Institute, Cincinnati, 1867; a veteran of the Civil War and later a practitioner of Morrison, Ill., and California; died at his home in Chino, Cal., February 7, from influenza, aged 78.

J. Wallace Daniel, M.D. Atlanta (Ga.) Medical College, 1894; formerly a Fellow of the American Medical Association; a member of the Medical Association of Georgia; died at his home in Claxton, Ga., Dec. 16, 1914, aged 42.

Edward Harper, M.D. Pulte Medical College, Cincinnati, 1887; of New Orleans; secretary of the Louisiana Homeopathic Board of Medical Examiners; died in the Touro Infirmary, New Orleans, February 4, aged 51.

Charles Joseph Stark, Jr., M.D. Long Island College Hospital, Brooklyn, N. Y., 1912; of Woodhaven, L. I., N. Y.; also a druggist; died suddenly in Brooklyn, N. Y., February 11, from heart disease, aged 33.

S. B. Lee (license, Georgia Eclectic Board, 1901), professor of hydro- and mechanical therapeutics in the Hospital Medical College, Eclectic, Atlanta, Ga.; died at his home in Red Oak, Ga., February 7, aged 56.

James Ford Simpson, M.D. University of Nashville, Tenn., 1904; of Athens, La.; died in the Schumpert Memorial Hospital, Shreveport, La., February 11, a day after an operation for appendicitis, aged 38.

Lawrence Mitchell Cremin, M.D. New York University, New York City, 1881; of New York City; a member of the Connecticut State Medical Society; died in Bridgeport, Mass., Dec. 16, 1914, aged 54.

Samuel S. Eidler, M.D. Rush Medical College, 1865; of Wichita, Kan.; for many years a practitioner of Streator and Ottawa, Ill.; died in San Antonio, Tex., January 24, from cerebral hemorrhage, aged 79.

Edward Francis Ford, M.D. Maryland Medical College, Baltimore, 1891; a physician and druggist of Chester, Pa.; died in the Chester Hospital, February 4, from cerebral hemorrhage, aged 39.

John D. Skilling, M.D. Western Reserve University, Cleveland, Ohio, 1865; surgeon of U. S. Volunteers throughout the Civil War; died at his home in Lonaconing, Md., February 8, aged 87.

A. S. Kirk (license, Mississippi), a practitioner of Winston County, Miss., for more than fifty years; died at his home in Louisville, Miss., February 9, aged 76.

John Henry Boothe, M.D. Medico-Chirurgical College of Philadelphia, 1899; a member of the Medical Society of the State of Pennsylvania; died at his home in Philadelphia, January 3, aged 46.

Francis A. Tappan, M.D. Kansas City (Mo.) Medical College, 1871; at one time assistant city physician of Kansas City; died at his home in Kansas City, Mo., February 1, aged 71.

Amos Hagar Peirce, M.D. Boston University, 1882; a Fellow of the American Medical Association; died at his home in West Newbury, February 9, from heart disease, aged 54.

Oscar Fred Thornton, M.D. St. Louis College of Physicians and Surgeons, 1909; of Vaughan, Ark.; died at the home of his father in Lick Creek, Ill., January 29, aged 29.

Albert Elbridge Singer, M.D. Miami Medical College, Cincinnati, 1880; formerly of Dayton, Ohio; died at his home in Lewisburg, Ohio, February 7, from nephritis, aged 66.

Charles Scott Meeks, M.D. Memphis Hospital Medical College, 1909; died at his home near Columbus, Miss., January 1, from an overdose of chloroform, aged 30.

Milton J. Bolan (license, Indiana, 1897), for nearly fifty years a practitioner of Indiana; died at his home in Peru, Ind., February 4, from senile debility, aged 85.

Charles L. Powers, M.D. Hahnemann Medical College, Chicago, 1878; a pioneer practitioner of Coffeyville, Kan.; died at his home, February 3, aged 70.

Sampson Eagon, M.D. University of Virginia, Charlottesville, 1857; died at his home in Dallas, Tex., January 30, from cerebral hemorrhage, aged 79.

Michael Jacob Beard, M.D. Miami Medical College, Cincinnati, 1891; died at his home in Lucasville, Ohio, February 5, from disease of the lungs, aged 46.

Daniel W. Finnimore, M.D. Fort Wayne (Ind.) College of Medicine, 1881; died at his home in Potsdam, N. Y., February 7, from nephritis, aged 60.

Paul Koeper, M.D. Rush Medical College, 1899; a Fellow of the American Medical Association; died at his home in Baxter, Ia., Dec. 11, 1914, aged 43.

Victor Weinstein, M.D. Bennett Medical College, Chicago, 1910; died at his home in Chicago, Dec. 21, 1914, from angina pectoris, aged about 60.

Jesse B. Pardew (license, Arkansas, 1903), for twenty years a practitioner of Argenta, Ark.; died at his home in that city, February 5, aged 62.

Charles Franklin Addis, M.D. Kentucky University, Louisville, 1906; died at his home in Rineyville, Ky., January 28, from tuberculosis, aged 36.

Truman Coates, M.D. University of Wooster, Cleveland, 1888; of Oxford, Pa.; died in the Polyclinic Hospital, Philadelphia, February 1, aged 62.

William Hasenbalg, M.D. Cooper Medical College, San Francisco, 1882; of Castro Valley, Alameda County, Cal.; died Nov. 27, 1914, aged 62.

Joseph Walter Sim, M.D. University of Maryland, Baltimore, 1892; health officer of Glenwood, Md.; died at his home, January 8, aged 57.

Lewis Stiles Rogers, M.D. Chicago Medical College, 1853; of San Pedro, Cal.; died at his old home in Bakersfield, Cal., Dec. 6, 1914, aged 79.

James H. Glass, M.D. College of Physicians and Surgeons, Baltimore, 1884; died at his home in Paso Robles, Cal., January 8, aged 57.

Henry C. Shipley, M.D. University of Maryland, Baltimore, 1865; of Washington, D. C.; died in Sykesville, Md., February 11.

James Ford Hodge, M.D. Tulane University, New Orleans, 1886; died at his home near Walnut Lane, La., January 30.

John William Chambers, M.D. University of Michigan, Ann Arbor, 1874; died at his home in Oketo, Kan., February 4, aged 64.

Nelson Lucius Dow, M.D. Hahnemann Medical College, Chicago, 1887; died at his home in Glover, Vt., Dec. 1, 1914, aged 53.

Anal A. Carruth, M.D. New Orleans School of Medicine, 1858; died at his home in Wilson, La., February 5, aged 77.

S. J. Oliver, M.D. Medical College of Georgia, Augusta, 1887; died recently at his home in Waynesboro, Ga.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

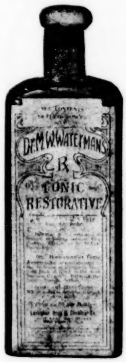
SOME MORE FRAUDULENT EPILEPSY CURES

The Waterman-Perkins-Kline Group of Nostrums

WATERMAN'S TONIC RESTORATIVE

The Waterman Institute of New York is one of the names under which Alexander W. Chappell has advertised "cures" for epilepsy and for the morphin habit. Chappell, who is said to be in the real estate business at Red Bank, N. J., also has operated under the name of the Lexington Drug and Chemical Company, which put out the Waterman "epilepsy cure." He is said to have been the principal owner of the "Aldine Laboratories" and the "Windsor Laboratories," and to have been formerly connected with a concern known as the "Berlin Remedy Company."

The advertising methods of the Waterman concern have been as vicious as its products. Whether advertising its morphin-loaded "dope" for unfortunate drug addicts or its bromid-loaded nostrum for epileptics, it has deluded and defrauded the public by means of advertisements prepared in the form of news items. For years certain newspapers published these advertisements in such form as to lead the unwary to believe they were telegraphic dispatches sent out to the newspapers. More recently, thanks to a government ruling on the subject, most of the newspapers carrying the Waterman advertisements have placed the tell-tale letters "*Adv.*" at the end of these items.



Apparently, it is not from New York alone that Chappell carries on his business. Newspaper advertisements identical in general appearance and wording with those of the Waterman Institute "news items" have been published telling of the marvelous results alleged to have been achieved in the treatment of epilepsy by one Dr. H. W. Perkins of Red Bank, N. J. Perkins apparently acts for Chappell both under his own name and also under the name of the Dr. R. H. Kline Company, a nostrum concern having the same address as the Lexington Drug and Chemical Company and, like it, said to be owned or controlled by A. W. Chappell.

Those who sent their money to the Waterman Institute for the "epilepsy cure" received a bottle of "Dr. M. W. Waterman's Tonic Restorative"; those who prefer to get the nostrum through Perkins of Red Bank receive "Prescription 909—Dr. Perkins' Favorite Prescription," while those who "fall for" the Dr. Kline fraud, get a bottle of "Dr. Kline's Nerve Remedy." The price is the same in any case—two dollars a bottle.

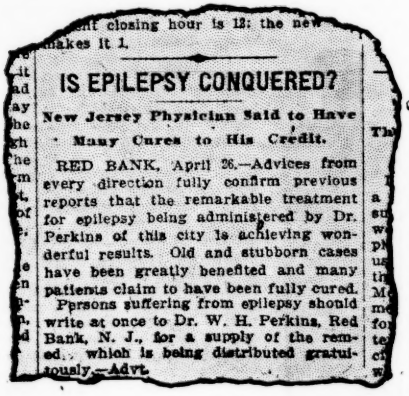
About a year ago there seemed to be an insurrection in the Waterman Institute camp. For years the letters sent out by the Waterman Institute, whether in connection with its villainous "morphin cure" or with the "epilepsy cure" have been signed "Lewis Riley, M.D." But in January, 1914, a letter from the M. W. Waterman Institute came signed William J. Brady, M.D., in which Brady begged to inform you that he had "superseded Dr. T. Lewis Riley" and would take personal charge of your case in the future. Moreover, he hoped to "give your case greater personal attention" than his predecessor, Dr. Riley, had done. Shortly after the Brady letter there came one from 112 East Nineteenth Street, New York City, signed Lewis Riley, M.D. This read, in part:

"Remember I have always been your physician, I alone treated all cases of epilepsy and nervous diseases, for the Waterman Institute, and no one has my record or tonic formulas. Should you take medicines apparently the same, it would not have the lasting effect."

Riley further urged his correspondents to address all communications and *make all remittances payable* to the "Pure Drug and Chemical Company" of that city. In another letter Riley wrote, among other things:

"I have been informed that a Dr. Brady is writing to my patients on a letter headed 'Waterman Institute' stating he has new and original methods, and sends them a sample of some kind of medicine. Dr. Brady has none of my formulas and any one who has taken any of my records from the Lexington Drug and Chemical Company has done so without my consent. Kindly do not consider me responsible for any deleterious effects that may arise from the use of any remedy that I have not prescribed. He also infers that I have quit treating epilepsy and nervous diseases and turned my practice over to him. This is not the case and at no time has he ever been employed in my offices as a consulting physician."

Our records fail to show that there is any licensed physician in New York named Lewis Riley. There is, however, a Thomas Lewis Riley, who was graduated in 1897 by the Bellevue Hospital Medical College, and was licensed in New York in 1900, and in New Jersey in 1914. William J. Brady, Riley's successor, is, according to our records, a graduate of New York University Medical College, 1892, and was licensed to practice in New York in 1894.

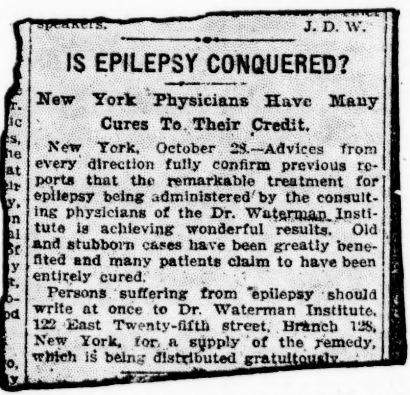


IS EPILEPSY CONQUERED?

New Jersey Physician Said to Have Many Cures to His Credit.

RED BANK, April 26.—Advices from every direction fully confirm previous reports that the remarkable treatment for epilepsy being administered by Dr. Perkins of this city is achieving wonderful results. Old and stubborn cases have been greatly benefited and many patients claim to have been fully cured.

Persons suffering from epilepsy should write at once to Dr. W. H. Perkins, Red Bank, N. J., for a supply of the remedy, which is being distributed gratuitously.—Advt.



J. D. W.

IS EPILEPSY CONQUERED?

New York Physicians Have Many Cures To Their Credit.

New York, October 28.—Advices from every direction fully confirm previous reports that the remarkable treatment for epilepsy being administered by the consulting physicians of the Dr. Waterman Institute is achieving wonderful results. Old and stubborn cases have been greatly benefited and many patients claim to have been entirely cured.

Persons suffering from epilepsy should write at once to Dr. Waterman Institute, 122 East Twenty-fifth street, Branch 128, New York, for a supply of the remedy, which is being distributed gratuitously.

Dr. W. H. Perkins, of Red Bank, N. J., and the Dr. Waterman Institute of New York City are two names under which one A. W. Chappell seems to do, or to have done, business. The Kline Laboratories, New York City, is still another name used by the same man. All of the concerns sell "cures" for epilepsy. Perkins and the Waterman Institute have reached the public by means of advertisements prepared as news items. Two such advertisements are here reproduced. The letters *"Advt."* following the items are a comparatively recent addition.

The "Dr. M. W. Waterman's Tonic Restorative" was analyzed in the Chemical Laboratory of the American Medical Association. The chemists' report follows:

CHEMISTS' REPORT[1]

One original bottle of "Dr. Waterman's Restorative," manufactured by Lexington Drug and Chemical Co., New York, N. Y., was submitted to the Chemical Laboratory for examination.

The bottle contained about 350 c.c. (11½ fluidounces) of a brown liquid, having extractive matter present and with an odor of cinnamon. The specific gravity at 15.6 C. was 1.1788. Qualitative tests demonstrated the presence of cinchona alkaloids, ammonium, potassium, sodium, chlorid and bromid. Quantitative determinations yielded the following:

Alkaloids (by weight)	0.04 per cent.
Ammonia (NH_3) (by weight)	1.30 per cent.
Potassium (K^+) (by weight)	2.70 per cent.
Sodium (Na^+) (by weight)	4.51 per cent.
Bromid (Br^-) (by weight)	16.36 per cent.
Chlorid (Cl^-) (by weight)	0.34 per cent.

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

Essentially, each 100 c.c. of the solution contains approximately 8.8 gm. ammonium bromid, 9.7 gm. potassium bromid and 8.1 gm. sodium bromid. Calculating from the bromid determination, each meal-time dose, one teaspoonful (1 fluidram), contains the equivalent of 17.6 grains potassium bromid, and each daily dose (5 teaspoonfuls) corresponds to 88.0 grains of potassium bromid.

The directions on every bottle of "Dr. M. W. Waterman's Tonic Restorative" give the following dosage for adults:

"One teaspoonful after each meal and two at bedtime, in a wineglassful or more of water."

As the chemists' report shows, these five teaspoonfuls of the Waterman nostrum contain the equivalent of 88 grains of potassium bromid. As in all "epilepsy cures," the natural tendency of the person taking the Waterman nostrum is to increase the dose. This explains the testimonials that are written by those who use such preparations. By increasing the dose of the bromids to a point far beyond that of safety the epileptic attacks are suppressed at the expense of permanent injury to, and brutalization of, the patient. To the non-medical mind, suppression of the attacks passes for a "cure." That the Waterman concern, in common with other exploiters of "epilepsy cures," cares little for the health or safety of the person using its nostrum, is indicated by the statement appearing on the label under "Doses and Directions":

"NOTE.—If these doses are not sufficient to stop the 'Fits' and 'Spasms' increase the dose . . ."

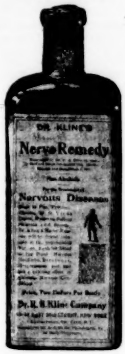
In other words, the Waterman Institute would leave the dosage of the nostrum entirely to the judgment of the user. And the public is not told that the stuff contains bromids, while it is assured that the preparation is "safe." The fraudulence of "Waterman's Tonic Restorative" is evident.

Dr. Kline's Nerve Remedy

Dr. Kline's Epilepsy Cure used to be advertised under the name of Dr. R. H. Kline of Philadelphia. Now, it is sold by the Dr. R. H. Kline Company, 45-47 East Twentieth Street, New York—the same address as the Lexington Drug and Chemical Company, manufacturers of the Waterman "epilepsy cure." On both the letterhead of the Dr. R. H. Kline Company and the carton in which the preparation comes, it is stated that the concern has its "laboratories" at Red Bank, N. J. Red Bank, it will be remembered, is the home of A. W. Chappell and his employé, H. W. Perkins,

M.D., of "Dr. Perkins' Favorite Prescription." It is not surprising, then, that those who write to the Dr. R. H. Kline concern should receive a letter signed "H. W. Perkins, M.D."

Originally there seems to have been a Dr. R. H. Kline who for years quacked it in Philadelphia. In the advertising leaflets sent out by the Dr. R. H. Kline Company in 1914, no mention is made of the fact that Kline is dead, or, in fact, that he is not still in charge of the concern. In common with "Dr. M. W. Waterman's Tonic Restorative" and "Dr. Perkins' Favorite Prescription," "Dr. Kline's Nerve Remedy" also comes at two dollars a bottle.



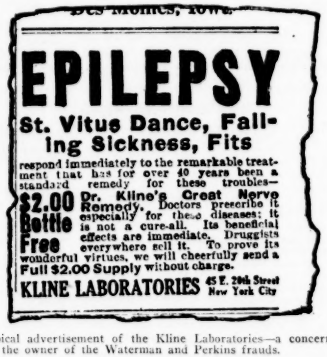
A bottle of Dr. Kline's Nerve Remedy was obtained and submitted to the Association's Laboratory for examination. The chemists' report follows:

CHEMISTS' REPORT[1]

One original bottle of "Dr. Kline's Nerve Remedy," manufactured by Dr. R. H. Kline Co., New York, N. Y., was submitted to the Chemical Laboratory for examination. The bottle contained about 350 c.c. (11½ fluidounces) of a brown liquid, having extractive matter present, and with an odor of cinnamon. The specific gravity of the liquid at 15.6 C. was 1.1740. Qualitative tests demonstrated the presence of cinchona alkaloids, ammonium, potassium, sodium, bromid and chlorid. Quantitative determinations yielded the following:

Alkalbids (by weight)	0.04 per cent.
Ammonia (NH_4) (by weight)	1.29 per cent.
Potassium (K^+) (by weight)	2.57 per cent.
Sodium (Na^+) (by weight)	1.50 per cent.
Bromid (Br^-) (by weight)	16.10 per cent.
Chlorid (Cl^-) (by weight)	0.23 per cent.

Essentially, each 100 c.c. of the solution contains approximately 8.7 gm. ammonium bromid, 9.2 gm. potassium bromid and 8.0 gm. sodium bromid. Calculating from the bromid determinations each meal-time dose, one teaspoonful (1


EPILEPSY
St. Vitus Dance, Falling Sickness, Fits
respond immediately to the remarkable treatment that has for over 40 years been a standard remedy for these troubles—
$2.00 Bottle Free
Dr. Kline's Great Nerve Remedy. Doctors prescribe it especially for these diseases; it is not a cure-all. Its beneficial effects are immediate. Druggists everywhere sell it. To prove its wonderful virtues, we will cheerfully send a Full $2.00 Supply without charge.
KLINE LABORATORIES 45 E. 29th Street New York City

A typical advertisement of the Kline Laboratories—a concern operated by the owner of the Waterman and Perkins frauds.

fluidram), contains the equivalent of 17.2 grains potassium bromid, and each daily dose (5 teaspoonfuls) corresponds to 87.0 grains potassium bromid.

The report on Dr. Kline's Nerve Remedy shows that it is identical with the product put out under the name of Dr. Waterman's Tonic Restorative. The fractional differences that appear are not more than would be found in comparing any two analyses of the same product.

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1915.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE HARRISON NARCOTIC LAW

To the Editor:—1. Is a physician dispensing his own remedies required to keep a record of cough mixtures, etc., containing only the minimum amount of opium, that is, 2 grains?

2. In dispensing to a patient when on a visit to him, if we leave 4 or 6 morphin ¼-grain tablets to be taken every one to four hours as directed, are we required to make and keep a record?

GEORGE D. CARNES, M.D., South Haven, Mich.

ANSWER.—1. No. The act does not apply to preparations which do not contain more than 2 grains of opium or more than one-fourth grain of morphin or more than one-eighth grain of heroin or more than 1 grain of codein, etc. Physicians dispensing remedies containing the minimum amount permitted of these drugs are not required to keep a record of them.

2. No. Drugs dispensed or distributed to patients by physicians in personal attendance on a patient need not be recorded (Article 10, Regulations).

To the Editor:—I ask you to notice the *Bulletin* of the Lycoming County Medical Society touching the new morphin-cocain act, which has been sent to you. What constitutional right has Congress to compel me to register before I may deal in and dispense these drugs? I am not engaged in interstate business. My business is confined to Pennsylvania. Pennsylvania has compelled me to comply with certain conditions before it gives me a permit to practice. It then compels me to register that permit and pay for it. It has the common decency, however, not to rob me of a fee each year for registering. Will you not look into this matter?

CHARLES J. CUMMINGS, M.D., Williamsport, Pa.

ANSWER.—Congress possesses the constitutional right to pass legislation regulating interstate commerce. The object sought in this case is the same as that sought in the passage of the law placing a prohibitive tax on the use of white phosphorus in the manufacture of matches, namely, the exercise of its legislative power for the public good. Both laws are in the guise of tax measures but are really for restrictive and not for revenue purposes. The tax of one dollar is not for revenue, but merely to make the law a revenue measure.

To the Editor:—I do not wish my name to appear in connection with this inquiry, but I believe answers in THE JOURNAL to the questions below will greatly help medical men:

Physicians must register and pay tax.

But: 1. Must a separate record and file of prescriptions be kept of those containing opiates and cocain? Will not the entry on our case records answer?

2. Must every such prescription have on it the name of the physician and his registered number and date of prescribing? If so, can all of these or any part be printed on the prescription blank? Will initials answer?

3. If a physician gives a hypodermic of morphin or sprays nose or throat with cocain must he make a record of it, and how complete must it be? Sprays and drops into eyes, etc., cannot be measured easily.

4. Must any record be made by a physician who orders a nurse to give a hypodermic of morphin?

5. Often a physician will direct a patient to refill for example a cough medicine if it distinctly aids him. Can this practice be continued?

N. S. D.

ANSWER.—1. Physicians are not required to keep a record of prescriptions. This cannot be emphasized too strongly. Physicians are only required to keep a record of narcotics dispensed. The prescription record is kept by the druggist.

2. Prescriptions for the drugs specified in the law must bear the signature in full of the physician, his registry number, the location of his office and the name and address of the person for whom such prescriptions are intended. There is nothing in the law or the regulations forbidding the registry number and the location of the office being printed on the blank. The physician's name must be "signed in full." Initials are not sufficient.

3. No. No record is required of drugs personally administered.

4. There is no distinct provision in the regulations on this point. A supplementary circular issued February 13 reads, "When visiting a patient in a hospital, a physician would

be considered as making a personal visit. . . . A visiting physician attending a patient in a hospital should be required by the hospital authorities when prescribing any drug falling under the scope of this law to place his initials on the chart or medicine sheet immediately after the drug prescribed." This requirement does not apply to state, county or municipal hospitals.

5. No. Prescriptions containing the specified drugs cannot be refilled. Regulations, Section 12 says, "If the physician desires the patient to continue taking a preparation, a new prescription must be written each time."

DIRECTIONS FOR MAKING DECINORMAL SOLUTION

To the Editor:—I should like to know how to make up a decinormal sodium hydroxid test solution.

E. J. G. SHULTS, M.D., Vienna, S. Dak.

ANSWER.—Decinormal alkaline solutions are usually made by diluting one part of the normal solution up to ten parts. Thus 100 c.c. of normal sodium hydroxid are put in a liter flask and diluted up to the mark with distilled water. The new solution is tested against a decinormal acid, which it should neutralize exactly, volume for volume. Directions for making normal sodium hydroxid solution are given in the United States Pharmacopeia.

THE USE OF THE LUETIN TEST

To the Editor:—The following phenomenon was noted by me recently, and as I have read or heard of nothing of the sort, I should like to report it.

A case of undoubted syphilis in the secondary stage with marked glandular and skin manifestations received prompt treatment with neosalvarsan, five maximal doses, and mercury, two courses of inunctions a year apart. After five months' rest from treatment, the blood Wassermann and provocative blood Wassermann tests were negative. After another rest period of several weeks, a luetin test was made and was doubtful, a tiny hard swelling being present from the first, not tender, with no areola, and perhaps 2 or 3 mm. in diameter. As the test was not absolutely negative, a short course of inunctions was decided on and begun in about ten days. On the fourth day, after two inunctions of mercury in the form of dilute ointment, of 2 gm. each, a very pronounced and typical luetin reaction was noted with considerable swelling, redness, tenderness and induration. This persisted for nearly ten days, slowly faded out and finally desquamated. The point of interest to me is this: Could this reaction be called a provocative luetin reaction and, if so, is it of any value? Has it any diagnostic or prognostic value? Perhaps it is simply a delayed reaction.

CHARLES E. FARR, M.D., New York.

ANSWER.—The luetin reaction is comparatively seldom positive in the secondary stage of syphilis. In such cases it may become positive when the treatment is instituted. The reaction in these cases, in which the Wassermann is likely to be negative, is of diagnostic value because it shows that the case under treatment is reacting to the treatment with the production of allergy. When such a positive reaction becomes negative again, it may be assumed that a temporary immunity has been established.

HIGH BLOOD PRESSURE AND THE HIGH-FREQUENCY CURRENT

To the Editor:—Can high blood pressure be permanently reduced by treatment with high-frequency current? If so, what is the technic?

JOHN H. MURPHY, M.D., Geneseo, Ill.

ANSWER.—There is no reliable evidence that high blood pressure can be permanently reduced by the high-frequency current. Temporary reduction of a few centimeters is secured by currents of a strength of from 400 to 500 milliamperes. This reduction is due to the heating effects of the current and the consequent dilatation of the peripheral blood vessels. If permanent results are to be secured, the treatment must include the ordinary dietetic and hygienic measures.

HYDRAMNIOS IN TWIN PREGNANCY

To the Editor:—Is acute hydramnios of one twin in twin pregnancy a rare condition? I have seen no mention of such a condition in any of the literature I have at hand.

T. F. LAURIE, M.D., Auburn, N. Y.

ANSWER.—Hydramnios is especially frequent in unioval twin pregnancies. In such cases it is commonly the case that one twin exhibits the hydramnios and the other shows the reverse condition of oligohydramnios.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, April 6-7. Sec., Dr. John Wix Thomas, Phoenix.
CALIFORNIA: San Francisco, April 13-16. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.
COLORADO: Denver, April 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic; New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.
DISTRICT OF COLUMBIA: Washington, April 13-15. Sec., Dr. George C. Ober, 125 B St., S. E.
IDAHO: Lewiston, April 6. Sec., Dr. John F. Schmershall, Jerome.
MAINE: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.
MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.
MINNESOTA: Minneapolis, April 6-8. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.
MISSOURI: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.
MONTANA: Helena, April 5. Sec., Dr. William C. Riddell, Helena.
RHODE ISLAND: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.
UTAH: Salt Lake City, April 5-6. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.
WEST VIRGINIA: Charleston, April 13. Sec., Dr. S. L. Jepson, 81 12th St., Wheeling.
WYOMING: Laramie, March 11-12. Sec., Dr. H. E. McCollum, Laramie.

Arkansas Homeopathic November Report

Dr. Scott C. Runnels, secretary of the Homeopathic State Medical Board of Arkansas, reports the written examination held at Little Rock, Nov. 12, 1914. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 3, all of whom passed. Two candidates were licensed through reciprocity. The following colleges were represented:

PASSED		Year Grad.	Per Cent.
College			
Arkansas Industrial University		(1889)	87
Boston University	(1890)	98.8; (1897)	94.4

LICENSED THROUGH RECIPROCITY		Year Grad.	Reciprocity with
College			
Denver Homeopathic College		(1902)	Oklahoma
Cleveland Homeopathic Medical College		(1907)	Oklahoma

Ohio Reciprocity Report

Dr. George H. Matson, secretary of the Ohio State Medical Board, reports that 10 candidates were licensed through reciprocity, Jan. 5, 1915. The following colleges were represented:

LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College		
Baltimore Medical College	(1909)	Maryland
Detroit College of Medicine	(1894)	Michigan
Univ. of Michigan, Dept. of Med. and Surg.	(1899) (1914)	Michigan
Dartmouth Medical School	(1908)	Maine
Bellevue Hospital Medical College	(1888)	Kentucky
Columbia University College of Physicians and Surg.	(1912)	New York
Cornell University	(1913)	New York
University of Pennsylvania	(1906)	Penna.
University of Pittsburgh	(1912)	Penna.

Rhode Island January Report

Dr. Gardner H. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Jan. 7-8, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 80. The total number of candidates examined was 4, all of whom passed. The following colleges were represented:

PASSED	Year Grad.	Per Cent.
College		
Yale Medical School	(1912)	89.9
Harvard University	(1908)	80
Tufts College Medical School	(1905)	80.4
University of Michigan, Dept. of Med. and Surg.	(1912)	92.7

Book Notices

MECHANO-THERAPEUTICS IN GENERAL PRACTICE. By G. de Swietochowski, M.D., M.R.C.S., Clinical Assistant, Electrical and Massage Department King's College Hospital. Cloth. Price, $1.50 net. Pp. 141, with 31 illustrations. New York: Paul B. Hoeber, 1914.

In his preface, the author recognizes the indifference on the part of medical men with regard to this important adjuvant in therapy, which he attributes to ignorance and to the neglect of the subject in the curriculum of medical schools. He says that the skill of the average man is quite sufficient to start with if shyness could only be overcome. Those who play on the piano or violin will find it a useful talent in this respect, too. Those who cannot rely on their fingers should leave massage alone altogether, rather than have recourse to vibrators, pulsators and other similar instruments. In experienced and reliable hands, however, these mechanical aids may be of service. The indications and contra-indications for the use of mechanotherapy are concisely stated. The technic is then described, with reference to fractures, sprains, dislocations, etc., and also with reference to chronic inflammations and various deformities. The second part of the book deals with the medical uses of massage. In this section it would seem as if more elaboration might be desirable. The treatment of the digestive system is included in seven pages, five of these being devoted to the treatment of constipation. While this brevity is disappointing in a certain way, it has the advantage that the book is restricted to a convenient size, and acquaintance with its contents or that of a similar guide should be regarded as an essential in the equipment of every physician.

ARBEITEN AUS DEM PHARMAZEUTISCHEN INSTITUT DER UNIVERSITÄT BERLIN. Herausgegeben von Prof. Dr. H. Thoms, Geh. Regierungsrat, Direktor des Pharmazeutischen Institutes der Universität Berlin. Eleventh volume. Paper. Price, 7 marks. Pp. 250. Berlin: Urban & Schwarzenberg, 1914.

This book represents essentially the eleventh annual report of work done in the Pharmaceutic Institute of the University of Berlin, and includes the publications of the year 1913. It includes reports from the division for the examination of medicaments, specialties and nostrums; reports of original work done in the division of organic chemistry, and reports on the work of the division for the examination of foods and other articles of consumption, and of technical products from the colonies. From a medical point of view, the comprehensive review of the new remedies introduced during the year 1913 is perhaps the more interesting in that it presents the essential information in a way that is readily understood. An article on the need for adequately controlling tinctures is also of importance, and serves to emphasize the nature of the control of pharmaceutic preparations that should be exercised by pharmacists. Altogether, this volume reflects the high class work done in the Pharmaceutic Institute of the University of Berlin, and might well be an incentive for the more progressive schools of pharmacy in this country to follow.

MENTAL MEDICINE AND NURSING FOR USE IN TRAINING-SCHOOLS FOR NURSES AND IN MEDICAL CLASSES AND A READY REFERENCE FOR THE GENERAL PRACTITIONER. By Robert Howland Chase, A.M., M.D., Physician-in-Chief, Friends Asylum for the Insane. Cloth. Price, $1.50. Pp. 244, with 78 illustrations. Philadelphia. J. B. Lippincott Company, 1914.

This is a good manual for nurses. Nearly one-fifth of its contents is devoted to elementary physiology and psychology —a commendable feature of the book, the student being thus enabled to follow the author intelligently. The treatment is discussed in different chapters both from the physician's and the nursing points of view. On the whole, the subject is handled satisfactorily from the nursing aspect, but the physician who expects much information will be disappointed. The many illustrations have been borrowed from standard text-books on psychiatry and appear in poor print, whereas fewer but original drawings might have contributed much to improve the typographic appearance of the book.

Medicolegal

What Accounted Loss of Half of Finger

(In re Petrie (N. Y.), 151 N. Y. Supp. 207)

The Supreme Court of New York, Appellate Division, Third Department, affirms an award in favor of Petrie by the workmen's compensation commission, which allowed him for the loss of one-half of the third finger when it had been so injured as to require an amputation in which about one-third of the bone of the distal phalange was cut off. The court says that to call this error was taking a limited view of the statute, and one not justified by its remedial character. To get the true spirit of the act, it is only necessary to read the "phalange" clause in full, where, after providing that the loss of the first phalange shall "be considered to be equal to the loss of one-half of such thumb or finger," it continues: "The loss of more than one phalange shall be considered as the loss of the entire thumb or finger," etc. That is, the loss of any part of the second phalange, however slight or immaterial, should be construed as a loss of the entire finger, and yet the court was asked to hold that in the case of the first phalange the destruction must be entire to warrant a holding that this constituted a loss of one-half of the finger. Obviously the taking of one-half of the second phalange of a finger would not result in the relative loss that the taking of the first half of the first phalange would. After the first phalange is gone, what remains of the second, be it greater or less, is comparatively unimportant, yet the statute clearly and unmistakably provides that, where the loss involves "more than one phalange," the loss of the whole finger shall be held to have resulted. This, it seems to the court, is a legislative construction on the clause here under consideration. The substantial injury of the first phalange, requiring amputation, is to be understood as involving the loss of one-half of the finger, and, if the injury extends beyond the first phalange, then it is to be construed as involving the entire finger. Of course, a mere pinching of the finger, which does not result in a permanent injury, is not to be considered as the loss of half a finger.

Improper Use of Scientific Books in Cross-Examination

(Ullrich vs. Chicago City Railway Co. (Ill.), 106 N. E. R. 828)

The Supreme Court of Illinois reverses for error in the use of medical works in the cross-examination of expert witnesses a judgment rendered in favor of the plaintiff for personal injuries. The court says that the plaintiff claimed that before she was injured her health was good, but that after her injury in a street car accident she suffered from hysteria and peritonitis, and that those afflictions were the result of the accident. The defendant sought to show that hysteria can never be the result of or caused by accident, but is congenital. In the cross-examination of the plaintiff's expert witnesses, counsel for the defendant asked each witness whether he knew of or had read certain medical books, etc. During this time counsel exhibited, in the presence of the jury, various text-books, stating, at times, the one he was reading from during the cross-examination, and at one time stating that he had all the books on the subject. He did not offer in evidence any of the medical works which he pretended to have before him and which he used in the cross-examination of the witnesses, but he could not be permitted to do indirectly that which he was not allowed to do directly. He succeeded in conveying the impression to the jury that the witnesses were testifying against recognized authority on the subject of hysteria, which was the only purpose the court can perceive that he could have had in the use he made of the books. The cross-examination was improper and constituted reversible error. The law is well settled in Illinois that scientific books may not be admitted in evidence before a jury, and that such books cannot be read from to contradict an expert witness, except where such expert assumes to base his opinion on the work of a particular author, in which case that work may be read in evidence to contradict him.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, San Francisco, June 21-25.

Amer. Assn. of Pathologists and Bacteriologists, St. Louis, Apr. 2-3.
Alabama State Medical Association, Birmingham, Apr. 20-23.
Georgia Medical Association, Macon, April 21-23.
Louisiana State Medical Society, Lake Charles, April 20-22.
Maryland Medical and Chir. Faculty, Baltimore, April 27-29.
Medical Society of the Missouri Valley, Omaha, March 25-26.
New York State Medical Society, Buffalo, April 27-29.
South Carolina Medical Association, Greenwood, April 20-22.
Tennessee State Medical Association, Nashville, April 13-15.

CONFERENCE ON MEDICAL EDUCATION*

Held in Chicago, Feb. 16, 1915

The Eleventh Annual Conference of the Council on Medical Education of the American Medical Association, which was the largest in point of attendance in the history of the Council, met at the Congress Hotel, and was opened with an address by the chairman, DR. ARTHUR DEAN BEVAN, Chicago, who said in part: We have recently made a revision of our third classification of medical colleges. During the last eight years the Council has made three separate classifications of medical schools, which have been regarded as temporary. In the last classification the schools were divided into four groups: A plus, A, B and C. The A plus group included those schools which, in addition to having a well-developed medical course, required a premedical science training for admission. Out of about ninety-eight medical schools that remain, however, eighty-four are now exacting this higher preliminary standard, and this has automatically eliminated the A plus classification. There is, therefore, no longer any reason for that special class.

The revised classification divides the schools of the country into three groups: An acceptable group, which the Council believes is worthy of full recognition by the state boards of the country; the C group, consisting of a limited number of schools which, in the opinion of the Council, are unworthy of recognition by state boards, and the B group, which includes schools in the doubtful class, the status of which should be determined by the state boards themselves.

The present classification places sixty-eight schools in Class A, the group of acceptable colleges including the Marquette University, School of Medicine, of Milwaukee, which has just been granted that rating. The New York Homeopathic Medical College and Flower Hospital, which was in the A group, has eliminated itself from that group by its failure to require for admission the premedical sciences of collegiate grade. That is automatic, as by instruction from the House of Delegates of the American Medical Association, no school shall be retained in the A group which does not require this premedical collegiate preparation. In the same manner a few schools will be automatically dropped into Class C unless they are so reorganized as to eliminate the stock feature, since under the instruction of the House of Delegates last June, no college is to be rated higher than Class C which is conducted as a stock corporation in the interest of the stockholders.

Eleven Years' Progress in Medical Education

DR. N. P. COLWELL, Chicago: Thirty-seven medical colleges began this year the enforcement of the entrance requirement of a college year in physics, chemistry and biology, joining the forty-seven which had already gone to that or higher entrance requirements, making altogether eighty-four medical colleges out of the present 100 operating under the higher standard.

The supply of medical schools in 1904 was far above normal, but has been reduced to an even 100 medical colleges. It will probably be further reduced by at least three or four by the end of June.

The percentage of medical colleges requiring two years of collegiate work exceeded that of the colleges requiring one year until 1913, when 33.7 per cent. required two years and 49.5 per cent. required one year. That the requirement of two years of collegiate work will eventually be the minimum requirement for admission to medical colleges in this country, however, is conclusively indicated by two factors. One is that the thirty-nine medical schools have already gone on that standard and that medical schools are so generally becoming medical departments of universities, where the two-year requirement is more satisfactory; the other is that already seven state medical licensing boards require two years of college preliminary preparation as an essential qualification for the license to practice medicine in those states, and the boards of several other states are about to adopt a similar standard.

Of the 100 medical colleges still existing, eighty-four have put into effect the requirement for admission of one or more years of collegiate work in addition to a high school education. In forty-seven colleges the higher requirement became effective in 1913 or earlier, and from forty-one of these, reports have been received showing this year's enrolments of students, and all but four report either increased enrolments, or larger freshman classes. In thirty-seven colleges the higher requirement began in 1914—at the beginning of the present college session—and, with one exception, these colleges had decreased enrolments, as was expected.

VARIATION IN MEDICAL COLLEGE ENROLMENTS

Figures showing number of colleges having enrolments in the session of 1914-15 larger, equal or smaller, respectively, than in the session of 1913-14.

Total Registration This Year	Number of Medical Colleges Requiring for Admission					Total Colleges
	Two Years of Coll. Work Effective in		One Year of Coll. Work Effective in		High School Course	
	1913 or Previous	In 1914	1913 or Previous	In 1914		
Increased...	22	..	7	1	3	33
Equal.....	3	..	1	..	..	4
Decreased...	4 (3)	3 (1)	4 (2)	28 (2)	5	44 (8)
Totals....	29	3	12	29	8	81

Figures in parenthesis show number of colleges which, although the total enrolment was diminished, had larger freshman classes than a year ago.

Reports were also received from eight medical colleges which continue to admit students having only a high school education. Unusually large enrolments were expected in these colleges owing to the higher standards enforced elsewhere. It was surprising, therefore, that only three had increased enrolments, and in these the increase was small.

In the eighty-one colleges from which reports for the present session have been obtained, there are 12,235 students as compared with 13,568 in the same colleges a year ago—a reduction of nearly 10 per cent.

In the thirty-seven medical schools which began the higher requirement in 1914, the percentage of decrease varied considerably, depending on the thoroughness with which the requirement was enforced.

The lack of proper enforcement of preliminary standards in most of these colleges is apparently due to the lack of proper methods or to a misconception of what the educational standards really call for, rather than to an intentional disregard of those standards.

The weakest points in the administration of entrance requirements during the past year have been found to be: (*a*) the continued desire on the part of some colleges to obtain students by the use of makeshift methods; (*b*) the wide variation in the value of certain certificates of examination which students may present; (*c*) the lack of effective methods of certification and evaluation of credentials, and (*d*) the lack, in many schools, of competent officials who have become expert in evaluating credentials.

* The complete report of this conference, including the discussions, will be published in the March 15 number of the American Medical Association Bulletin. A copy will be sent to any address on receipt of 5 cents.

A routine method of verification of every credential presented by the student, therefore, whether it be a diploma or a certificate of examination, should be rigidly adhered to. A simple but effective routine method is as follows: (*a*) obtain from the student, in writing, a complete educational history showing when and in what school or schools his preliminary preparation was obtained; (*b*) obtain evidence from the most reliable sources regarding the standing of the schools or colleges attended—whether they are worthy of being accredited or not, and (*c*) obtain direct from the principal of the secondary school attended a statement giving the various subjects studied; the school year in which each was taken; the text-book used; the number of weeks covered; the number of periods per week; the length of the periods in minutes; the final grades obtained, and also whether or not the student graduated. A similar statement should be obtained from the registrar of any college attended, showing the time the student spent in college, the courses completed and the grades obtained.

Heretofore, in the administration of entrance requirements, the deans of medical colleges had chiefly to do with high schools; but now that entrance requirements have been advanced so as to include one or more years of collegiate work there comes the question: What constitutes "collegiate" work? It is well known that some colleges so-called are teaching little else than secondary school courses. In order to specify more clearly the actual education desired, the Council's educational standards suggest that "college work" should not be considered as such unless it has been preceded by a completed course of study in a standard four-year secondary school or its full educational equivalent. Such discrimination will at once eliminate the short-cut, secondary school-colleges which endeavor to crowd the work of several years into three or four. Such procedure will also be a powerful factor in standardizing the colleges of liberal arts.

There are now six medical colleges which require that hereafter every student enrolled must complete a year's internship in an approved hospital before he will be granted his M.D. degree.

On the whole, the progress being made along all lines of medical education is simply amazing to those who are in position to follow it. Much of the progress is within the medical schools, in the improved laboratories, the securing of more and better teachers, the close relations with hospitals and the improved methods of clinical teaching—facts that do not come to the attention of the casual observer.

The chairman presented Dr. Victor C. Vaughan, chairman of the Committee on Reorganization of Clinical Teaching, who read a paper based on the reports received from the individual members of the committee (see page 785).

DISCUSSION

DR. WILLIAM H. WELCH, Baltimore: The time has come, as is recognized by the Council, to approach the important problem of clinical teaching and the organization of medical clinics. It is unquestionably a fact that there has not been a corresponding advance on the clinical side comparable to that on the laboratory side.

As to the full time system minus the provision that the head of the clinic shall receive a salary which will enable him to be independent of seeking other sources of income from private practice, we have not attempted at the Johns Hopkins to go quite to the extent of the full time proposition which is advocated. There is a little too much emphasis put on the full time plan running down through the whole system below the head of the department. We were very careful in presenting the subject to the General Educational Board to indicate that there would be a very important need in the medical school of men engaged in practice, and some of the physicians suggested as full time men had better be part time men.

As to how the medical school is to obtain a teaching hospital, the university has to provide its own. The future will depend on properly endowed hospitals, but above all, public hospitals, municipal hospitals, supported by public funds, being placed, as they are in Europe, to a very large extent at the disposal of the medical schools for teaching purposes.

As to the hospital year, I think it is premature for us at the moment to require this year for a degree. If we are to have another year added, it is a serious matter from the point of view of medical education. It is not perfectly clear that that is the best use of the added year, and it is a year over which the university conferring the degree has very little control.

PRESIDENT HENRY S. PRITCHETT, of the Carnegie Foundation for the Advancement of Teaching, New York: It seems to me, it is clear that the clinical teacher must have as his primary work the work of the school and hospital; that it is no longer possible to administer a very large practice and be at the same time a clinical teacher of the type which is now necessary. I think in many medical schools clinical teachers fail to realize how quickly raising the entrance requirements has reacted on the clinical teachers. Once you require a student to be fairly well educated, he is no longer going to be satisfied with the kind of clinical teaching which was perfectly acceptable ten or twenty years ago, and so we may assume as the outcome of this discussion that the medical profession and medical teachers are ready to accept the principle that the clinical teacher must be, first of all, a worker in the school and hospital and his practice must be secondary. In the second place, it is perfectly clear that if he is to give his primary work to the school and hospital, then the facilities for such work must be afforded. There is no use in having a man whose primary work is that of teaching and who is engaged in hospital work, unless the facilities are adequate for laboratory work.

DR. GEORGE DOCK, St. Louis: I think what Dr. Welch has said about the intern year is extremely well taken. I myself have taken the same ground ever since the movement for the intern year started. We need a clinical clerk year much more than an intern year, for the reason that very few hospitals are satisfactory training grounds now for well-trained medical students.

DR. SAMUEL W. LAMBERT, New York: There is only one point I would like to emphasize, and that is entirely connected with the financial side in the reorganization of clinical instruction. It costs medical schools now about three times as much money per student as that student pays in tuition fees, even in schools that have between 300 and 400 students. The great problem for most schools to-day is to devise some scheme by which the two corporations—one the medical school and university, and the other the hospital—can work together for the common good of medical education.

DR. J. M. BALDY, Philadelphia: No school can hope, unless it has an exceedingly small class, personally to control sufficient hospital facilities to give an ideal internship. If the internship is to be a success, the trustees of hospitals and of school hospitals must see that the proper facilities for such are afforded.

PRESIDENT GEORGE E. VINCENT, of the University of Minnesota, then read a paper on "The University and Higher Degrees in Medicine" (see page 790).

DISCUSSION

PRESIDENT HARRY PRATT JUDSON, of the University of Chicago: There are many physicians who would find it to their advantage to go back to a medical school and undertake work of various kinds in order to bring themselves up to the point of advanced medical science. They desire to refresh their knowledge of certain things which they did not take a strong hold of in their undergraduate days. They want to make themselves more efficient and more intelligent men. That is an excellent function of a graduate school connected with a medical school. In all graduate schools there are a small number of students or doctors of medicine who will be engaged in work of an advanced character that is entirely beyond the work carried on for the instruction of undergraduates, such as that involving especially productive investigation in some of the most recondite lines. It is the kind of work in which we wish to train a small number of choice men, and they are the ones who are doing the real graduate

work about which President Vincent has spoken. That, it seems to me, will involve another very important consideration: For the class of work done by graduate students, the ordinary faculty giving undergraduate instruction in a medical school will suffice; but for the second class we must have choice men, men of power and breadth of vision engaged in large investigations, the kind of men essential for the guidance of a few choice students in medicine. If we are to develop in that line in our medical schools, it will become more and more essential for our universities to develop that kind of men and put them in charge of this kind of work. It cannot be class work, but it must be thorough, personal work, and it is a great privilege for any man of ambition to work with such men. It does not matter how long he works, provided he completes certain definite work.

DR. WILLIAM CHARLES WHITE, Pittsburgh: On account of lack of thoroughness in the human individual, the great majority of all graduates of schools of medicine will be simply visualizers. I doubt whether it will ever be different. In the general hospitals in which medical education is given, as they are constructed to-day, we have excluded the great mass of diseases from which the populace suffers—tuberculosis, venereal diseases, infectious diseases—all the things that are demanded of the visualizers who are usually employed for this work. In addition we graduate technicians, certain mechanicians, surgeons and probably sanitary engineers, and I think it might be well in considering medical education to-day to hold back in a measure in the evolution and see if we cannot fulfil what will conduce to public welfare rather than to turn out a fully equipped, high grade technician as the result of our medical educational work.

DR. M. J. ROSENAU, Boston, then presented a paper on "Courses and Degrees in Public Health Work" (see page 794).

DISCUSSION

MR. WILLIAM C. HOAD, Professor of Sanitary Engineering, University of Michigan: As community life grows more complex, the civil engineer and the physician will be brought into more intimate relations. Both labor toward the same great end, and each will find himself able, through cooperation with the other, more and more effectively to serve his community and to discharge fully the high obligations laid on him by his profession. I am thoroughly convinced by the full and hearty cooperation of these two in public health work, that the present large administrative problems may be attacked from a surer base, the reputation of the health department will be enhanced, and new sources of support for it will be made available, and there will be opened up new fields of usefulness as yet unoccupied.

Preparation of Specialists in Ophthalmology and Otolaryngology

DR. FRANK C. TODD, Minneapolis: The University of Minnesota Medical School last year established courses for the preparation of specialists, not only in ophthalmology, but also in all branches of medicine, and in a modest way began the operation of that plan last September.

The requirements for admission to the courses in all departments are, first, graduation from a high grade medical school and, second, the completion after graduation of one year's internship in a general hospital or its equivalent. The courses then cover a period of two and three years, depending on the specialty and the length of time the student desires to devote to his work. On the successful completion of two years of work in any specialty, together with the completion and written report of a piece of research work, the student will be granted a degree, Master of Science, in whatever department he has conducted his work.

As to the time when it is best after graduation in medicine for the practitioner to begin his preparation for his specialty, I believe that whatever specialty he undertakes, the earlier, after securing his M.D. degree, the aspirant bends his steps in the direction of his specialty the better.

In ophthalmology and otolaryngology the student must acquire a detailed and thorough knowledge of anatomy of the head, face and neck, with especial reference to the eye and ear and air passages. During his three years' course it would seem to be necessary for a physician preparing himself to become a specialist in ophthalmology and otolaryngology to spend one-half of his time in laboratory and other work, not consisting of clinical work in ophthalmology and otolaryngology. This includes experimental surgery and some research work, for which time should be allowed and for which encouragement should be given. This leaves one-half the time for clinical work in ophthalmology and otolaryngology, which should commence at the beginning of his course. It will consist of history taking, of learning the technic of handling instruments, of daily work in assisting in the outpatient clinic and in assisting in operations, as well as following up the care of the patients at the bedside. Later, and after experimental work has been done on the cadaver and animals, and the student has demonstrated his fitness, he should be given opportunity to do the simpler operations at first and later the more complex ones.

DISCUSSION

DR. EDWARD JACKSON, Denver: With reference to a degree, speaking for myself and for my colleagues, if there is any general agreement on the subject to give the degree of Master of Science or Doctor of Science in ophthalmology or any other branch—and the proposition appeals to me strongly—if university authorities agree that this should be done. I am sure the University of Colorado will quickly fall in line with such a movement.

Report of the Committee to Investigate Graduate Medical Instruction

DR. HORACE D. ARNOLD, Boston, Chairman, presented the report on graduate medical instruction, which is abstracted as follows:

The problem of instructing graduates in medicine should be considered from the standpoint of the public good. The aim is to furnish better doctors to the public. Much has been accomplished by raising the standards of medical schools; and the problem of the proper training of medical students may be regarded as practically settled for the present. The most difficult and the most important problem to-day is that of raising the standard among physicians who are already in practice. It is clear that different classes of students need very different opportunities, and courses of instruction to meet their needs must vary from elementary to very advanced courses, students being admitted only to courses which they are qualified to take.

During the past year the committee inspected the more important "postgraduate" schools of the country—independent schools organized for the purpose of teaching medical graduates. These schools vary from good to very bad. Not only is the instruction poor and the equipment inadequate in many of them, but some are clearly commercial in type, carried on for the direct or indirect gain of the instructors. The existence of such schools, and the difficulty of controlling them, shows the weakness of the plan of depending on these independent schools for adequate instruction for graduates. Hence it is desirable that good medical schools should undertake this form of instruction as far as they are able.

The medical profession is becoming convinced of the necessity of establishing standards for specialists. Nothing brings greater discredit to the profession than the blunders of self-styled specialists who have had an inadequate training. The training of specialists is clearly a form of graduate instruction. It should involve a systematic course of instruction of at least one year, followed by a year or more of supervised clinical experience. This involves the organization of a graduate medical department, the possession of exceptionally good clinical facilities, and close affiliation with suitable hospitals. Such a course is worthy of recognition by some form of degree—a "higher" degree in medicine than M.D.—and it is desirable that such degrees should be granted only by universities. It is clear that only university medical schools which have exceptionally good opportunities should attempt the training of specialists.

Aside from opportunities for research, our best medical schools have made little provision for graduates who seek

advanced instruction. Several of the schools, however, are beginning to give serious consideration to the problem of graduate teaching, and this should be encouraged. Instruction of this type should be of the highest grade, and the best schools may well consider that it is a duty they owe to the community to meet the demand for such courses.

The problem of graduate medical instruction is very different from that of the undergraduate school. There is no fixed curriculum, and no definite number of subjects that must be covered. It is creditable for a school to offer but a single course, if it is a good one, but discreditable to try to cover more ground than it can do well. If a school offers only a few courses, it is not necessary to have any special machinery or organization to take charge of the work. Each department can organize and manage such courses as it wishes to offer with a little extra work for the administrative force of the school. Only when this form of instruction is undertaken on an extensive scale is it desirable to establish a separate department or school.

Hitherto the better "postgraduate" schools have been successful because they had to compete only with poorer schools of the same class. If the good medical schools enter this field of teaching, these schools will have to come up to the standards of good medical schools or they will deteriorate and fall to the level of the poorer "postgraduate" schools, chiefly through the loss of their best teachers. Many of these men stand very high in the estimation of the profession. They are interested in graduate teaching more for the good it will do than for personal satisfaction and have become associated with "postgraduate" schools because there were no others where such teaching could be done. These men will not stay with schools of inferior grade if good medical schools undertake the work.

The best "postgraduate" schools have suffered in reputation by being placed in the same class with the poorer schools, and will suffer still more as attention is directed to standards. The solution of this difficulty would be to seek affiliation with good medical schools or with universities. To secure such affiliation, a "postgraduate" school must come up to the standard of the school with which it seeks affiliation. Few, if any, of these schools can hope for affiliation with the best medical schools on their present basis. They must bring their weak departments up to the standard before seeking affiliation; or they must be prepared, in arranging an affiliation, to drop poor instructors and to give up weak courses.

Owing to the great difference in the previous training of graduates who seek instruction, there can be no uniform admission requirements of an educational character. For the benefit of the public, even the most poorly trained practitioner, if he is legally entitled to practice medicine, should have an opportunity to improve his medical knowedge. It is also desirable, on the contrary, that graduates from poor schools who are not registered should not be able to coach up in these courses and learn just enough to pass the state licensing boards.

It is recommended that a certificate be regarded as a diploma; that the minimum time requirement be four months of all day work, taken consecutively; that it should be granted only for a systematic course, approved by the school, in which attendance and work have been satisfactory, and that the student must pass an examination based on this course of study. A school may issue for shorter courses an official statement as to a student's attendance or the character of his work; but the form must be such that it does not resemble a diploma.

The Council will not at present attempt to divide all the independent schools into those which are approved and those which are not approved. Any such school, however, may apply for the approval of the Council. Such approval may be granted if the school meets the requirements as to admission and certificates, and if, in all departments in which instruction is given it comes up to the standard of a Class A school.

DISCUSSION

DR. JAMES F. MCKERNON, New York: No distinct advantage is to be gained by putting restrictions or prohibitions in the way of any earnest practitioner. The more the student is restricted, the more you coerce him, the less will you guide him and the less you will teach him, and the less you benefit the community. I believe that the better class of postgraduate medical schools is doing a work that at the present time cannot be undertaken by any other institutions in this country. When the undergraduate schools give us better material, we will turn out a better finished product, but because the practitioners at large have deficiencies of early training we should not close the door of further medical instruction to them because of their lack of training.

DR. GEORGE M. KOBER, Washington, D. C.: The public is vitally interested in the solution of the question, If certain diseases are preventable, why are they not prevented? I hail with delight every effort that is being made by institutions of higher learning to afford facilities for the equipment of men to carry on this noble mission.

DR. WALTER L. BIERRING, Des Moines, Iowa: It requires special facilities for graduate instruction in different lines for specialties, and it requires coordination of the engineering and medical courses to train health officers adequately, and it seems to me they have almost ideal arrangements for this combination at Harvard Medical School with the Massachusetts Institute of Technology which cannot be duplicated in many places in this country.

DR. N. P. COLWELL then presented a preliminary report on the "Standardization of Hospitals." Before the hospital internship could be made a fixed requirement for all medical college graduates, it was necessary to see whether there were enough good hospitals to provide the internships needed. Early in 1913 a preliminary investigation of the hospital situation was begun. This investigation showed that there were 924 hospitals in the United States having 100 beds or more, and 1,500 others having from twenty-five to 100 beds, or altogether 2,424 hospitals having over twenty-five beds. These hospitals had altogether 193,056 beds, or an average of ninety-two each, and would provide places for about 4,000 interns, allowing fifty beds per intern, or for 8,000 interns if there was one intern for every twenty-five beds. Since there were less than 4,000 medical graduates each year, if all these hospitals made use of interns, there would surely be enough places for all. But not all hospitals were using interns. Of the 2,424 hospitals, reports were received from 2,185, and of this number only 852 hospitals were regularly using interns, the total number of interns provided for being 3,006. Sufficient places, therefore, were not being provided, since in that year there were 3,981 medical graduates. One of the chief objects of a general investigation of hospitals, therefore, will be to induce a larger number of those which are approved to provide for the training of interns.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

February, XXXVI, No. 3, pp. 239-351

1 Changes in Blood after Muscular Activity and During Training. E. C. Schneider and L. C. Havens, Colorado Springs, Colo.
2 Neutralizing Power of Saliva in Its Relation to Dental Caries. J. A. Marshall, Berkeley, Cal.
3 *Influence of Blood Transfusion on Hyperglycemia and Glycosuria of Pancreatic Diabetes in Dog. A. J. Carlson and H. Ginsburg, Chicago.
4 *Influence of Blood Transfusion on Kidneys. I. A. Rabens, Chicago.
5 Threshold Stimulus of Chorda Tympani Nerve in Relation to Salivary Secretion and Vasodilatation. C. M. Gruber, Philadelphia.
6 *Factors Affecting Coagulation Time of Blood. VI. Effect of Rapid Progressive Hemorrhage on Factors of Coagulation. K. R. Drinker and C. K. Drinker, Boston.
7 Vasomotor Nerves of Portal Vein. R. Burton-Opitz, New York.
8 *Influence of Pupillary Diameter on Visual Acuity. P. W. Cobb, Cleveland.
9 *Effect of Repeated Injections of Pituitrin on Milk Secretion. S. Simpson and R. L. Hill, Ithaca, N. Y.

3. **Blood Transfusion in Pancreatic Diabetes.**—The transfusion of normal blood into dogs in pancreatic diabetes Carlson and Ginsburg found causes a temporary lowering of the hyperglycemia. But before this can be taken as an evidence of the presence in normal blood of an internal secretion from the pancreas, it must be shown that this temporary lowering of the hyperglycemia is due to storage and oxidation of sugar in the tissues. Their work indicates that sugar retained as a result of the blood transfusion is not subsequently excreted. If this is the case, what can happen to this sugar except oxidation in the tissues? In the first place, a temporary lowering of the rate of tissue metabolism might account for temporary fall in blood sugar. Or, the metabolism rate being the same, some of the sugar may disappear by way of the digestive secretions and bacterial oxidation in the digestive tract.

4. **Influence of Blood Transfusion on Kidneys.**—Rabens' results fail to bring any evidence of injury or depression of the kidneys by Carlson's method of transfusion.

6. **Effect of Hemorrhage on Coagulation of Blood.**—The Drinkers emphasize that rapid progressive hemorrhage causes a progressive decrease in coagulation time. An occasional animal proves an exception to this rule and shows no change in its rate of clotting, no matter how severe the hemorrhage. Antithrombin decreases in amount when the coagulation time decreases and remains practically constant when the coagulation time is unchanged. Prothrombin tends first to increase slightly in amount and then to decrease slightly. Fibrinogen, estimated by the heat coagulation method, decreases as hemorrhage progresses. Platelet counts do not vary with rapid progressive hemorrhage.

8. **Influence of Pupillary Diameter on Visual Acuity.**—By the use of circular diaphragms before the eye Cobb demonstrated that an aperture for optimal visual acuity exists somewhere between the limits 1 and 5.6 mm. for brightness of test-object from 5.9 and 189 candles per square meter. When the illumination of the test object is compensated for the size of aperture to give equally bright images on the retina, the optimum is somewhat less than when constant illumination is used and the brightness of the retinal image varies with the pupillary area. In the former case it falls at 2 to 4 mm., in the latter at 4 mm. on the average.

9. **Effect of Pituitrin on Milk Secretion.**—The administration of pituitary extract, by intravenous, intramuscular or subcutaneous injection to a lactating animal led to a marked increase in the quantity of milk secreted and also in its fat content. In the goat, if the injection was continued at intervals over a prolonged period—several months—immunity to its action on the mammary glands appeared to be established both in regard to the amount of milk yielded and the percentage of fat it contains.

Boston Medical and Surgical Journal

February 18, CLXXII, No. 7, pp. 241-284

10 *Treatment of Diabetes. F. M. Allen, New York.
11 Some Perils Confronting State Care of Insane. C. P. Bancroft, Concord, N. H.
12 Preoperative Diagnosis of Tubercular Mesenteric and Retroperitoneal Glands. E. H. Risley, Boston.
13 Localized, Subacute Form of Bronchopneumonia. R. C. Larrabee, Boston.
14 Field for Local Anesthesia and of Spinal Anesthesia in Genito-Urinary Surgery. A. H. Crosbie, Boston.

10. **Treatment of Diabetes.**—Allen maintains that diabetes is not a disease but merely the weakness of a bodily function, namely, the function of assimilating certain foods. If diabetes is a weakness of the pancreatic function one can understand why the breakdown is most frequent in elderly persons, but generally most serious in young persons. Stop glycosuria by fasting, and then place the animal on a low diet which will support life without producing glycosuria. Such an animal is thin, but strong and lively, with no cachexia and no sign of downward tendency. The treatment for patients is similar. The first step is to fast till glycosuria ceases, and then for twenty-four or forty-eight hours longer. At the same time, the ketonuria falls steeply. It quickly approximates what a normal individual would show under similar conditions, and the aim is to keep it constantly down to this level. Plain fasting suffices for the purpose; but since alcohol is a food which does not produce glycosuria and is said to diminish ketonuria, it is generally given during fasting, especially if there is danger of coma. Its use or omission in later treatment depends on individual conditions. Alkalies may be useful for the first few days if coma seems imminent, but are then no longer needed.

When the fasting patient has been free from glycosuria for twenty-four to forty-eight hours, the next step is to begin feeding very slowly and cautiously. There need not be a fixed program. It is desirable to individualize the diet to suit the needs of different patients. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day, with or without alcohol. The original fast, to clear up the urine in the first place, may be anything from two to ten days, but after that no fast need be longer than one day. The things to be considered in the diet are carbohydrate, protein, fat and bulk. Frequently the first thing given after the fast is carbohydrate. No distinction is necessary between different forms of starch, but there are advantages in using vegetables. The first day after fasting, the only food may be 200 gm. of vegetables of the 5 and 6 per cent. classes. This is increased day by day until a trace of glycosuria appears, which is checked by a fast day. The purpose of such a program is to learn the carbohydrate tolerance and to clear up the last traces of acidosis. After this carbohydrate period, or sometimes in place of it, protein is given. On the first day perhaps one or two eggs are given, and nothing else. More protein, generally as eggs and meat, is added day by day, until the patient either shows glycosuria or reaches a safe protein ration. The purpose here is to learn the protein tolerance, and to cover protein loss as quickly as possible. Fat is somewhat less urgently needed, except in very weak and emaciated patients; it can be added gradually, as conditions seem to indicate. An element of bulk in the diet is necessary to give the comfortable feeling of fulness and to prevent constipation. This is the great advantage of green vegetables. When they are fed raw, or cooked in steam, or boiled and evaporated so that no water is thrown away, they contain a definite quantity of carbohydrate besides valuable salts; and this is the only form of carbohydrate that patients thus treated ordinarily receive. Some cases are so severe that even green vegetables cannot be tolerated. Under these conditions the vegetables may be boiled through three waters, throwing away all the water. Nearly all starch is thus removed, and the most severe cases generally take these thrice-cooked vegetables gladly and without glycosuria.

One result of the initial program described is the loss of weight. The attempt to put on weight, Allen says, is one of the surest ways of bringing back all the symptoms and sending the patient down hill. It is probably one of the chief causes of past failures in treating severe diabetes. In the severe cases it is found necessary to restrict all classes of food, and to test the tolerance of each patient for each particular class. Carbohydrate is given if possible, but is kept safely below the limit of tolerance. Protein must be kept fairly low, sometimes very low. With a dangerously low protein tolerance the working rule has been to exclude all carbohydrate, then feed as much protein as is possible without glycosuria. The histories of four of the twenty-seven patients so treated in the Rockefeller Hospital are cited.

Lancet-Clinic, Cincinnati

February 6, CXIII, No. 6, pp. 143-168

15 *Renal Infections from Bacteriologic Point of View. I. S. Koll, Chicago.
16 *Anuria: Its Etiologic and Surgical Phases. H. Cabot, Boston.
17 Genital Tuberculosis. R. W. Staley, Cincinnati.
18 Nucleate of Soda and Dementia Praecox. B. Holmes, Chicago.
19 Incurability of Tuberculosis. T. W. Schaefer, Kansas City, Mo.

15. Abstracted in THE JOURNAL, Nov. 14, 1914, p. 1786.
16. Abstracted in THE JOURNAL, Nov. 21, 1914, p. 1878.

Laryngoscope, St. Louis

January, XXV, No. 1, pp. 1-64

20 Use of Plastic Operations in Large Mastoid Cavities. E. R. Carpenter, El Paso, Tex.
21 Ocular Symptoms of Brain Abscess and Sinus Thrombosis of Otitic Origin. Report of Case. G. B. Jobson, Franklin, Pa.
22 Symptoms and Diagnosis of Laryngeal Tuberculosis. E. F. Ingals, Chicago.
23 Removal of Open Safety Pin from Esophagus Under Suspension. W. B. Chamberlin, Cleveland.
24 Abscess Following Tonsillectomy Under Local Anesthesia. D. A. Vanderhoof, Colorado Springs, Colo.
25 Intranasal Operation, with Guide for Cure of Dacryocystitis. F. M. Hanger, Staunton, Va.
26 Case of Dacryocystorhinostomy. O. Glogau, New York.
27 Nose-Throat, Ear, Orbital and Intracranial Complications in Accessory Sinus Diseases. L. D. Brose, Evansville, Ind.
28 Teeth as Primary Factor in Diseases of Ear, Nose and Throat—Diagnostic Value of Cooperation of Otologist, Rhinologist, Laryngologist with Dentist. D. B. Freundlich, New York.

Medical Record, New York

February 20, LXXXVII, No. 8, pp. 295-336

29 Method of Feeding Infants with Precision. A. E. Mucklow, Brooklyn.
30 Program of Psychiatric Progress. A. J. Rosanoff, Kings Park.
31 Tuberculin Therapy. F. M. Pottenger, Monrovia, Cal.
32 Perineorrhaphy, Puerperal Septicemia and Pain. J. M. Mabbott, New York.
33 Psychology of Tuberculosis. S. Bauch, Bedford Hills.
34 Catatonic States in Manic Depressive Insanity. J. Smith, Brooklyn.
35 Some Peculiar Mould Diseases. B. G. R. Williams, Paris, Ill.
36 Tube for Use in Phlebotomy. W. Spielberg, New York.

Michigan State Medical Society Journal, Grand Rapids

February, XIV, No. 2, pp. 75-148

37 Kinetic System. G. W. Crile, Cleveland.
38 *Postoperative Ileus and Ileus Accompanying Peritonitis. R. C. Andries, Detroit.
39 Early Diagnosis in Pulmonary Tuberculosis. J. S. Pritchard, Battle Creek.
40 Evidences of Colitis and Intestinal Toxemia in Chronic Diseases and Its Treatment. M. A. Mortensen, Battle Creek.
41 Skull Fractures. F. B. Walker, Detroit.
42 Ectopic Pregnancy. Twice in Same Patient within Five Months. Report of Case. R. J. E. Oden, Cadillac.
43 How Epidemic of Diphtheria was Checked by Thorough Isolation of Carriers. E. H. Foust, Ithaca.
44 *Analysis of Mortality of Abdominal Surgery. R. E. Skeel, Cleveland.
45 Case of Convulsions in New-Born Baby. A. H. Beifeld, Ann Arbor.
46 Exfoliative Dermatitis and Granuloma Fungoides Showing Results of Treatment. U. J. Wile, Ann Arbor.

38. **Postoperative Ileus and Ileus Accompanying Peritonitis.**—The critical condition of a patient suffering with ileus, Andries says, is largely due to a loss of body fluids. Enterostomy, for postoperative ileus that will not quickly yield to stomach lavage and enemata is a life-saving measure. It is really Nature's method of effecting a cure. Enterostomy, in advanced cases of peritonitis in cases in which abdominal distention is marked, is a logical procedure and deserves universal adoption.

44. **Analysis of Mortality of Abdominal Surgery.**—It is Skeel's belief that proper selection of the anesthetic for the case and proper handling of the tissues together with correct determination of the amount of operating which the patient can safely stand will do more to lessen the mortality rate in the hands of the average surgeon than any attempt to follow spectacular methods under fanciful names which appear like a comet, loom large for a time and are forgotten so soon as the commotion produced by their unusual character has had time to subside.

Modern Hospital, St. Louis

February, IV, No. 2, pp. 73-146

47 Some Aspects of Use of Proprietary Foods in Diabetic Dietary. J. P. Street, New Haven, Conn.
48 Place of Hospital in Preventive Medicine. E. L. Fisk, New York.
49 Proposed Method of Hospital Standardization. R. Waterman, Philadelphia.
50 Hospital Roentgen Ray Laboratory—Its Scope and Limitations. I. S. Hirsch, New York.
51 Feeding the Hospital—Food. L. Graves, Cleveland.
52 Hospital Home Experiment with Tuberculous Families. E. C. Brenner, New York.
53 Systematic Ambulance Service for Metropolitan Hospitals. N. Maul, New York.

New York Medical Journal

February 13, CI, No. 7, pp. 277-332

54 Shockless Operation. W. F. Campbell, Brooklyn.
55 Diseases of Epididymis and Testicle. H. H. Morton, Brooklyn.
56 Results of Transvesical Prostatectomy. P. M. Pilcher, Brooklyn.
57 Twilight Sleep. J. O. Polak, Brooklyn.
58 Gynecologic Operations on Insane. G. Gibson, Brooklyn.
59 Fracture of Lower End of Humerus with Displacement. J. S. Wight, Brooklyn.
60 Personal Factor in Infant Feeding. L. Kerr, Brooklyn.
61 *Pelvic Abscess Following Fowler Position in Appendicitis. H. B. Delatour, Brooklyn.
62 *Control of Hemorrhage in Suprapubic Prostatectomy. R. S. Fowler, Brooklyn.
63 Etiology and Treatment of Colonospasm. D. Roberts, Brooklyn.
64 *Standardization of Preparation of Patients for Abdominal Operations. H. F. Graham, Brooklyn.
65 Alcohol and Iodin as Germicides. A. Comstock, Brooklyn.
66 Chorea Mollis with Muscular Atrophy. Report of Case. J. M. Wallfield, Brooklyn.
67 Menace of Antimedical Legislation. W. J. Cruikshank, Brooklyn.

February 20, No. 8, pp. 333-384

68 *Drainage of Seminal Vesicles. J. B. Squier, New York.
69 New Test of Blood Serum and Cerebrospinal Fluid in Syphilitic Involvement of Nervous System. A. Gordon, Philadelphia.
70 Radium in Cancer of Bladder. W. Ayres, New York.
71 Mannerisms and Their Relation to Psychic Life. J. P. H. Murphy, Washington, D. C.
72 Coccus Found in Foot and Mouth Disease. F. Proescher, Pittsburgh.
73 Foreign Body in Psoas Muscle. P. Le Breton, Buffalo.
74 Tonsillectomy. C. H. Smith New York.
75 Condensed Milk. P. Bartholow, New York.

61. **Pelvic Abscess Following Fowler Position in Appendicitis.**—Delatour emphasizes, that in those cases of septic peritonitis, in which the patient continues to show abnormal temperature, and the wound looks healthy, and careful examination of it shows no undrained pockets, be sure to make a rectal examination, especially if the patient is losing ground, and has frequent bowel movements, with tenesmus and the discharge of mucus. If on examination, an abscess is found, do not hesitate to drain it through the rectum. There is apparently little or no danger of infection from this source. To wait for the abscess to be reached easily from in front, is to lose valuable time, and the incision through the abdominal wall will leave a weak point for the development of hernia, as drainage must be continued for some time. While aspiration may prove satisfactory in some cases, we recommend incision whenever possible.

62. **Control of Hemorrhage in Suprapubic Prostatectomy.**—The method which has been entirely satisfactory in Fowler's hands is as follows: The tip of a tube of a suction apparatus with a direct inflow for hot solution is placed in the cavity from which the prostate has been removed. The inflow tube is connected with an irrigator containing boiling water. The sucking portion of the apparatus is connected with the vacuum bottle in which a vacuum is maintained in the usual manner by flowing water. The apparatus, before its introduction, is tested, for it is important that suction be perfect. Introduced into the cavity with the inflow tube shut off, all blood is sucked out, and while this suction is continued the boiling water is allowed to flow through the inflow tube into the cavity. The inflow is regulated so that the suction does not allow the boiling solution to come in contact with any but the raw tissues. After two minutes' application of the boiling solution hemostasis is complete, and the surrounding parts have not been injured.

64. **Preparation of Patients for Abdominal Operations.**—A single standard method used throughout all hospitals in preparing patients for abdominal operations is proposed by Graham. It is as follows: 1. Tasteless castor oil—1 ounce—on admission but not later than 7 p. m. 2. Tub bath, if necessary. 3. Shave, with tincture of green soap, followed by alcohol and allowed to dry while the mouth is inspected, dirty teeth cleansed with a cotton swab and, if necessary, painted with tincture of iodin. The razor should be sterile. 4. Paint the area with one-half strength tincture of iodin and apply sterile compresses. 5. Farinaceous diet is ordered and a pitcher of water and a glass placed by the bedside and the patient encouraged to drink freely. 6. Physical examination by the house surgeon. 7. Specimen of urine sent to

the laboratory for examination. 8. Enema at 9 p. m. and trional, grains 5, and sodium bromid, grains 30, given. 9. In the morning, weak tea or coffee or water allowed up to within two hours of operation, unless special contra-indication exists. 10. Emptying of the bladder or catheterization just before leaving for the operating room.

68. **Drainage of Seminal Vesicles.**—Operative drainage of the vesicles for chronic focal infection, Squier says, has produced in a series of 50 cases a cure in 68 per cent. of all cases operated, improvement in 24 per cent., and no improvement in 8 per cent. The largest percentage of cure has been among those cases in which arthritic symptoms predominated: Cured, 76.4 per cent.; improved, 23.6 per cent. His experience with drainage of the seminal vesicles in patients suffering from arthropathies seems to indicate that the amount of relief to be expected in any given case will largely depend on the length of time elapsed between the acute urethral infection, the appearance of the joint lesion, and the operation for drainage. After ankylosis from fibrous or bony changes has taken place, operation upon the vesicles will offer but little except toward arresting further joint destruction.

Northwest Medicine, Seattle, Wash.

February, VII, No. 2, pp. 35-68

76 Repair of Bone Defects by Use of Autogenous Grafts. D. B. Phemister, Chicago.
77 Recent Advances in Orthopedic Surgery. E. A. Rich, Tacoma., and C. R. McClure, Portland, Ore.
78 Red Eye. A. R. Irvine, Salt Lake City.
79 Cases of Blindness. L. Purgmire, Ogden, Utah.
80 Extra-Ocular Muscles. S. D. Brazeau, Spokane.
81 Irritability of Bladder in Women. H. W. Howard, Portland, Ore.
82 Early Day Cases of Obstetrics. A. C. Ewing, Salt Lake City.

Oklahoma State Medical Association Journal, Muskogee

February, VII, No. 9, pp. 271-307

83 Pathology and Diagnosis of Diseases of Gall-Bladder and Ducts. C. E. Clymer, Oklahoma City.
84 Causes and Treatment of Postoperative Shock. P. P. Nesbitt, Muskogee.
85 Goiter. R. M. Howard, Oklahoma City.
86 Diagnosis of Pneumonia. L. S. Willour, McAlester.
87 Nitrous Oxid Oxygen Anesthesia. T. C. Burns, Oklahoma City.
88 Nasal Obstruction in Children. C. B. Barker, Guthrie.
89 Operative Treatment of Gonorrheal Epididymitis. L. F. Watson, Oklahoma City.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

February, XX, No. 2, pp. 63-114

90 Stone in Right Ureter Simulating Appendicitis. Report of Cases. A. M. Willis, Richmond.
91 Responsibility for Morbidity and Mortality of Appendicitis. F. H. Smith, Abingdon.
92 Methods of Finding Early Cases of Tuberculosis. B. L. Taliaferro, Catawba.
93 Spartein Sulphate and Dr. Pettey. L. B. Wiggs, Richmond.
94 Hospital Architecture. J. A. Johnston, Richmond.

Ophthalmic Record, Chicago

February, XXIV, No. 2, pp. 55-108

95 Scleral Puncture for Expulsive Subchorioidal Hemorrhage Following Sclerostomy—Scleral Puncture for Postoperative Separation of Choriod. F. H. Verhoeff, Boston.
96 Influence of Heredity in Development of Strabismus. W. Reber, Philadelphia.
97 New Eye Speculum. A. S. Green and L. D. Green, San Francisco.
98 Case of Retinal Detachment. T. H. Curtin, New York.
99 Conservative Treatment of Penetrating Wounds of Eyeball. A. E. Bulson, Jr., Fort Wayne, Ind.
100 Operative Treatment of Acute Glaucoma. G. H. Burnham, Toronto, Canada.
101 Spectacle Frame for Tennis Players and Farmers. H. Gifford, Omaha.

Surgery, Gynecology and Obstetrics, Chicago

February, XX, No. 2, pp. 129-252

102 *Treatment of Osteomyelitis. C. C. Simmons, Boston.
103 *Intestinal Stasis. B. Moynihan, Leeds, England.
104 *Treatment of Second Degree of Pelvic Contraction. H. Jellett, Dublin, Ireland.
105 Experience with Resection of Esophagus for Carcinoma. W. Meyer, New York.
106 *Plastic Operations on Stomach. C. Beck, Chicago.
107 Study of Twenty-Five Tabetic Bladders. I. S. Koll, Chicago.
108 *Intussusception. W. R. Cubbins, Chicago.
109 Fracture of Spine of Tibia. Report of Case. J. J. Kurlander, Cleveland.
110 Temperature Range After Supravaginal Hysterectomy for Myofibromata. I. S. Stone, Washington, D. C.
111 Gross Anatomy of Human Prostate and Contiguous Structures. O. S. Lowsley, New York.
112 *Nerve-Blocking. M. L. Harris, Chicago.
113 Pathology and Treatment of Acute Infectious (Metastatic) Arthritis. F. C. Zapffe, Chicago.
114 *Acute Hemorrhagic Pancreatitis. Report of Eight Cases. W. Linder, Brooklyn.
115 Treatment of Acute Infections. F. G. Dyas, Chicago.
116 Weak Feet. W. B. Owen, Louisville, Ky.
117 *Silence of Renal Tuberculosis. G. S. Gordon, Vancouver, B. C.
118 Dermoids of Kidney. J. F. Baldwin, Columbus, O.
119 Series of Abdominal Cesarean Sections Performed under Local Anesthesia. J. C. Webster, Chicago.
120 *New Operation for Stricture of Rectum or Sigmoid. J. Wiener, New York.
121 Butterfly Retractor in Operations on Gall-Ducts. F. Reder, St. Louis.
122 *New Method of Lateral (Side-To-Side) Intestinal Anastomosis. A. L. Soresi, New York.
123 *Treatment of Undescended Testis. J. A. Wolfer, Chicago.
124 Subperiosteal Osteotomy of Os Calcis for Pes Calcaneus. Report of Two Cases. W. C. Campbell, Memphis, Tenn.
125 Wire Splint in Early Treatment of Congenital Club-Foot. A. J. Dalton, St. Joseph.
126 Care and Feeding of Incubator Babies. C. G. Grulee, Chicago.
127 *Case of Genito-Urinary Tuberculosis. R. Anderson, Salt Lake City.
128 Urinary Incontinence in Women. R. Cadwallader, San Francisco.
129 Treatment of Purulent Streptococcic Cerebrospinal Meningitis. W. S. Bryant, New York.
130 *How to Sharpen a Scalpel. V. Berry, Okmulgee, Okla.

102. **Treatment of Osteomyelitis.**—In 72 of the 82 cases analyzed by Simmons the age at onset was under 20 and in 58, or 70.8 per cent., under 15. If the diagnosis is made at the onset of the disease and the bone operated on at once, the prognosis is good except in the most severe cases of staphylococcic septicemia. This septicemia can evidently exist in what may be termed a latent state for a long time. In children with pain in a limb and evidence of toxemia, always consider osteomyelitis. Operate early even if the symptoms are rather vague. If the diagnosis is incorrect practically no harm is done while if correct a great deal of suffering may be avoided. In acute cases, open to medulla and pack the wound. Prognosis good. The treatment and prognosis varies of necessity somewhat in these early cases but in general the earlier the operation the better the prognosis. In cases in which the bone destruction has taken place, seen less than three months after the onset of the disease, perform subperiosteal resection when possible. Prognosis good.

In chronic cases of bone abscess of less than one year's duration, drain and pack. Prognosis good. In chronic cases with bone destruction of less than one year's duration, remove sequestrum and pack. Prognosis good. In old chronic cases, either with bone destruction or of the bone-abscess type, remove necrotic areas and drain. Try to obliterate the cavity with flaps of living tissue. If this cannot be done either use bone wax, pack or sterilize the cavity, allow it to fill with blood clot, and close without drainage. The prognosis, if the cavity can be obliterated, is fair, otherwise poor. The treatment when such bones as the pelvis are involved is unsatisfactory and the prognosis problematical. When in old chronic cases the whole shaft of a long bone is badly diseased the possibility of resection of the entire shaft with bone transplantation should be considered before amputation is resorted to.

103. **Intestinal Stasis.**—The victim of what Moynihan calls "Lane's disease" is easily recognized, and the symptoms are caused to disappear by appropriate surgical treatment. The patient is generally a woman of unhealthy aspect and attenuated figure. She is lean, cadaverous, flat-chested, and she has a sour breath and cold and clammy hands. The skin is harsh and of an earthy color and bears many crops of pimples; its secretion is apt to be distressingly noticeable. She makes complaint of "indigestion," pain after meals, flatulence, and inveterate and incoercible constipation. The abdominal muscles lack bulk and tone. They are flabby and flaccid, and all the viscera which they should hold up are fallen in greater or less degree. Mentally, there is often

a complete absence of the joy of life; the patient is a morose, querulous, and often suspicious and introspective person. These attributes are rarely all present together, but so many of them may coexist as to enable a distinct type of patient to be recognized. In the very obvious cases of this kind, Moynihan does not think the mild measures that can often usefully be employed for the novice—massage, abdominal exercises, and the unrestricted use of paraffin—are really of any value. These sufferers are properly cases for surgical treatment. The colon should be excised in whole or in part. In some, perhaps, ileosigmoidostomy may be done; but in every case, with one exception, in his own series there has been some regurgitation of the intestinal contents upward along the descending colon to the cecum. The stasis then is worse than before, for a mass of fecal material that is never wholly dislodged is palpable at all times.

Personally, Moynihan believes that nothing short of colectomy offers a substantial chance of cure. The part of the gut that needs removal is he thinks, the last part of the ileum, the cecum, and the ascending colon. Accordingly, in such patients who need surgery he prefers to do Friedrich's operation of resection of these parts of the bowel. The evidence at the moment available allows us to say that intestinal stasis does seem to stand in a causal relationship toward some cases of chronic joint affections, and that such cases exhibit a marked and instantaneous delay or even cessation in the destructive processes, after operation on the bowel and that a complete recovery of the joint ultimately occurs.

104. **Treatment of Second Degree of Pelvic Contraction.**—As to the treatment of the second degree of pelvic contraction, pubiotomy is, Jellett's operation of choice, unless there are special circumstances in the case or special complications present. He says that pubiotomy is especially indicated in the young multipara, because of the effect of the operation on subsequent pregnancies, and because owing to previous labor, the vaginal canal is dilated and lacerations are unlikely to occur. On the other hand, cesarean section is more suitable in the elderly primipara, because vaginal laceration is more likely to occur, and because it is unnecessary in her to take account of future pregnancies. Premature labor is only indicated under special conditions which render either of the foregoing operations impossible or inadmissible. Craniotomy is only permissible when the child is dead.

106. **Plastic Operations on Stomach.**—Beck records the following experiments: 1. The plastic formation of a new pylorus by a flap. The results operatively were good. 2. Implantation of the small intestine in place of resected pylorus. The fluoroscopic examination proved the absolutely good function of the implanted intestine and the examination of the specimen of the dog killed after weeks showed remarkable changes in epithelial structure, the epithelium of the jejunum growing similar to that of the stomach. 3. The use of an intestinal patch for the stomach defect in the small curvature. The defect healed beautifully and the dogs did well. 4. Resection of large part of the front wall of the stomach and filling of the defect with omentum only, without stitching the wall. All the dogs survived. Even a few days after the operation they were lively and ate well and the examination after even as short a time as one week, surely after five to six weeks, showed that the defect had dwindled to a small point and the omentum covered it up on the outside, forming a defense wall against perforation. 5. Excisions of portions of the stomach and implantation of neighboring flaps of the stomach, according to the well-known laws of plastic flaps. These experiments were all satisfactory.

108. **Intussusception.**—The anatomic condition that has attracted Cubbins' attention the most is the length of the mesentery of the terminal ileum and the fact that the descending colon in these cases also possesses a distinct mesentery.

In order to avoid recurrence of the intussusception Cubbins has used the following method: The ileum is brought parallel to the ascending colon and sutured to it with three to five catgut sutures. The cecum is fixed in the iliac fossa in some cases with another suture. The fact that as the two bowels are parallel and cannot intussuscept will be at once evident. The long mesentery of these bowels allows them to assume a horizontal position in the belly, and we therefore need not consider a kinking of the ileum.

112. Abstracted in THE JOURNAL, June 27, 1914, p. 2047.

114. **Acute Hemorrhagic Pancreatitis.**—A positive diagnosis of acute hemorrhagic pancreatitis cannot be made with absolute certainty, since we still lack a distinct pathognomonic sign for this disease. Laboratory aids, such as the Cammidge reaction and the Wohlgemuth diastase blood test are of no value in this condition. The most striking feature of this condition, clinically, is the evidence of peritoneal disturbance in the upper abdomen, the so-called "acute abdomen" which all surgeons agree is an indication for surgical interference; and acute hemorrhagic pancreatitis should always be borne in mind in such cases. When finding the peculiar odorless serosanguineous fluid and the small flecks of fat necrosis, it is direct and undoubted evidence of acute hemorrhagic pancreatitis. The best results are obtained in cases in which operation precedes the stage of necrosis of pus formation. Hence, early surgical intervention in all such cases will be rewarded by more frequent recoveries.

Linder's observation of the intense cyanosis of the distended small intestines, cyanosis, with the peculiar granular or gritty feel of the thickened great omentum, has helped him in many cases to recognize the condition at operation, and look to the pancreas at once as the cause of the trouble. This is of special value in cases of patients operated on for supposed intestinal obstruction. The abdomen opened, the condition should be looked for and recognized quickly. Then prompt and efficient drainage should be instituted, causing the patient as little shock as is compatible with good surgical technic.

117. **Silence of Renal Tuberculosis.**—Renal tuberculosis gives no local symptoms in a large percentage of cases. Its first manifestation may be hematuria or symptoms of its spread to the bladder. Gordon states that a history of gonorrhea or the finding of colon bacillus, staphylococci, or other pathologic micro-organisms in the urine in no way excludes the concurrent presence of tubercle bacilli. In fact, renal tuberculosis predisposes the urinary tract to other infections and the tubercle bacillus is usually reinforced by such allies before it has progressed far in its invasion. It is usually unilateral at first, when the whole focus can be removed and the patient cured, but in time may become bilateral or miliary when the case is hopeless.

120. **New Operation for Stricture of Rectum and Sigmoid.**—By forcing the bowel downward toward the anus from within the abdomen, while the assistant steadied the bougie from outside the anus Wiener was able to overcome the stricture. The rectum was "milked" over the bougie at the site of the stricture until the largest Wales bougie lay in the rectum above the former stricture. The bougie was allowed to remain in place and the abdomen was closed without drainage. Eighteen hours after operation the bougie was removed on account of pain. Convalescence was uninterrupted.

122. **New Method of Lateral Intestinal Anastomosis.**—The technic of Soresi's method is as follows: After the usual preparation of the intestines the two stumps which are to be anastomosed are brought in contact, the cut edges in opposite directions. A strand of any suture material, preferably silk, about 40 cm. long, on which two round needles have been threaded (the choice of the needles depends on the operator—the author always uses plain seamstress's needles No. 7), is used for a seroserous suture in the following manner: The suture is started midway between the two cut edges of the intestine, about 2 mm. from the attachment of the mesentery. One of the needles is used to start the suture and the stitches are taken toward one of the cut edges up to a distance of approximately 3 mm. from the same.

A like procedure is followed with the other needle in the opposite direction. The two ends of the thread are gently pulled apart, but are held parallel with the suture line to

insure a perfect approximation of the serous surfaces. The ends are dropped temporarily, to be used later. With a pair of scissors the two stumps of the intestines are cut longitudinally and parallel to the seroserous suture, approximately 3 mm. from it. Two needles are threaded with one strand of chromic or iodized catgut No. 1. A suture intersecting the three coats is started just above opposite the joint of the beginning of the seroserous suture, and is continued completely around half way with each needle, until the intestine is completely closed. The two ends of the catgut are then tied with two knots—the first one being a surgical one—and the catgut is cut short. The two needles which had been used to start the seroserous suture are picked up and the two ends of the silk again pulled gently as described above. The suture is continued half way with each needle, until the two needles meet when the thread is tied and cut close. The completed anastomosis appears more like an end-to-end than a side-to-side anastomosis.

123. **Treatment of Undescended Testis.**—The inguinal canal is opened by Wolfer as in the Bassini operation for the cure of inguinal hernia. A pocket is then prepared in the scrotum by stretching the parts with the fingers and packing a large piece of gauze into this fossa, leaving it in position until the testis is prepared. The testis is then found. Usually it can be delivered by picking up and freeing the structures emitting from the internal ring—the remnant of the gubernaculum ligament—using gentle traction on them and pressure on the abdomen just above the inguinal region. The cord is then freed, separating the vas from the rest of the structures. The deep epigastric vessels, usually two veins and the artery, are freed by blunt dissection and held out of the way with a blunt hook. The transversalis fascia is then cut down to the pubes. The testis is drawn behind the deep epigastric vessels. The vas will now follow down behind Poupart's ligament. The structures which extend upward and outward are freed from the peritoneum and dealt with as in the Davison operation—pushed behind the bulge of the peritoneum. When by posterior displacement of the spermatic structures, sufficient length has been given the cord to allow the testis to be placed in the lower part of the scrotum, the gauze pack is removed from the scrotal fossa and the testis placed in the pocket prepared for it. In doing this operation three times, Wolfer has not found it necessary to fasten the testis in the scrotum aside from placing a catgut suture from the periosteum and tissues over the pubic spine to the inner border of Poupart's ligament; in other words, the testis is simply retained in the scrotum by obstructing the scrotal outlet.

127. **Case of Genito-Urinary Tuberculosis.**—In Anderson's case in freeing a growth from the common iliac vein, the vein tore and this necessitated ligation in two places, above and below the point of rupture. In closing the abdomen there was a marked venous oozing, which showed how readily the collateral circulation was established. So far as he has been able to search the literature, Anderson has never found a case reported in which the common iliac vein was ligated.

130. **How to Sharpen a Scalpel.**—A quantity of clean beef fat is rendered to common tallow, strained through fine cloth or canton flannel, and while in the melted state, carborundum powder, No. 1 F is stirred into the melted tallow to make a stiff paste. The mixture is then allowed to cool. To use the paste, simply spread freely on a smooth strop, lay the strop on a table, and draw the scalpel back and forth at right angles not diagonally. This absolutely solves the problem of a keen-edged knife. In cold weather if the paste is too stiff, add a drop or two of olive oil to the paste on the strop. To get an extremely smooth and keen edge to finish the sharpening a paste can be used of No. 2 F carborundum powder mixed in tallow.

West Virginia Medical Journal, Wheeling

February, IX, No. 8, pp. 255-290

131 Medical Experiences in Balkans. C. S. Ford, U. S. Army.
132 Penetrating Wounds of Abdomen and Thorax. A. P. Butt, Davis.
133 Case of Frontal and Maxillary Sinusitis. T. E. Peery, Bluefield.
134 Morphin Heredity. J. W. Williams, Richmond.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Roentgen Ray, London

February, XIX, No. 9, pp. 307-338

1 Roentgen Ray Work at First Western Base Hospital. C. T. Holland.

British Medical Journal, London

January 30, I, No. 2822, pp. 189-232

2 *Cerebrospinal Fever in Camps and Barracks. W. Osler.
3 Surgical Experiences at First Southern General Hospital, Birmingham. G. Barling.
4 Diagnosis and Treatment of Parenchymatous Syphilis. F. W. Mott.
5 Spread of Asiatic Schistosomiasis. R. T. Leiper and E. L. Atkinson.
6 Alleged Responsibility of Medical Profession for Reintroduction of Rum Ration into British Army. V. Horsley.
7 Baths for Wounded Soldiers. R. F. Fox.

February 6, No. 2823, pp. 233-276

8 *Employment of Ether in Surgical Therapeusis. H. F. Waterhouse.
9 Action of Ether on Certain Microorganisms. W. W. C. Topley.
10 Biochemistry of Immunity Reactions. C. H. Browning.
11 Therapeutics of Organic Extracts. D. N. Paton, O. Grunbaum and A. Hertz.
12 Shrapnel Wound of Spine, with Exceptionally Low Temperature. M. W. B. Oliver and F. B. Winfield.
13 Successful Method for Extermination of Vermin Infesting Troops. S. M. Copeman.

2. **Cerebrospinal Fever in Camps and Barracks.**—In the outbreaks among the troops, Osler says, there have always been three strong predisposing factors: Overcrowding in camps or barracks, the cold winter weather, and muscular overexertion among young recruits. Two of these conditions have prevailed during the past three months. The weather has been atrocious and an enormous number of young recruits have been in active training. There has not been special overcrowding, but a great many men have been in tents, in the ordinary regulation form of which, nine men live in close contact, and he can testify from examination that the ventilation is not always good. It is this very intimate contact that seems to favor the communication of the disease. With fresh air, sunlight, and scrupulous personal cleanliness, the epidemics, as a rule, quickly subside.

Osler adds that stringent preventive measures have been taken—isolation of the sick, systematic examination of the contacts, and the disinfection of the nasopharynx of any carriers, which should suffice to limit the outbreaks. In a circular issued a year or two ago in the French army, Vincent recommends the following mixture, to be used five or six times a day as an inhalation: Iodin 12 gm., guaiacol 2 gm., thymol 35 centigrams, alcohol 200 gm., potassium iodid 6 gm. Disinfection of the pharynx is carried out by swabbing with a 3 to 5 per cent. solution of glycerin and iodin. In the recent Texas epidemic Sophian found that a spray composed of 1 per cent. hydrogen peroxid and 9 per cent. argyrol, destroyed the meningococcus quicker than any other measure.

8. **Employment of Ether in Surgical Therapeusis.**—The conditions in which Waterhouse uses ether as an antiseptic are the following: 1. Psoas and other tuberculous abscesses in which, after incision and flushing with normal saline solution, ether (1½ ounces was the maximum employed) was introduced into the abscess cavity and the incision sewed up without drainage. 2. Abscesses, the result of appendicitis, in which, after incision of the abscess, the margins of the wound were held open with retractors, and 1 ounce of ether was allowed to boil away in the abscess cavity. 3. Cases of gangrene or perforation of the appendix, in which the neighboring inflamed coils of intestine were washed with ether. 4. Compound fractures: In these cases the wound in the soft parts, the fractured ends of the bones and the torn medulla were freely washed with ether. In two of such cases the fracture was plated, with excellent result. 5. Carbuncles, in which ether was injected not only into the slough, but 3 or 4 drops were also injected at intervals of about 1 inch, into the subcutaneous tissue just outside the carbuncle.

6. Tuberculous glands: Ether—3 or 4 drops—was injected by means of a hypodermic syringe into every gland that was palpably enlarged. 7. Tuberculous synovitis of joints, especially the knee, wrist, elbow and ankle. In all these cases Bier's passive congestion was also employed. Here the best results were obtained in examples of tuberculous hydrops, first described by the author's old teacher, Professor König. 8. Septic wounds of the soft parts, in which ether surpasses, in Waterhouse's opinion, all other antiseptics. 9. Sinuses, which were filled with ether. 10. Cases of pyogenic osteomyelitis in which, after a gutter had been cut in the bone and all the infected medulla removed, the cavity was filled with ether, the incision in the soft parts being usually left unsutured. 11. Suppurating buboes, especially those due to chancroid (Ducrey's bacillus). Ether is also a perfect application to the chancroid itself. 12. In cases in which an incision had to be made through skin in a part in which asepsis is difficult to maintain—for example, in axilla or scrotum, or when the patient was very stout—wash the entire wound with ether prior to closing it.

Ind Medical Gazette, Calcutta

January, L, No. 1, pp. 1-40

14 Emetin in Cholera. L. Rogers.
15 Five Flagellate Trichomonas Parasitic in Man. G. C. Chatterjee.
16 Studies in Malaria. H. Stott.
17 Dysentery. F. C. McCombie.
18 Unusual Case of Siamese Twins. C. W. O'Brien.
19 Death after Salvarsan. A. Neve.
20 Right Scrotal Fecal Fistula. W. Vost.

Journal of Tropical Medicine and Hygiene, London

February 1, XVIII, No. 3, pp. 25-36

21 Importance of Tertiary Yaws. R. Howard.

Lancet, London

February 6, I, No. 4771, 265-308

22 Immunity Against Infectious Disease with Special Reference to Antityphoid Inoculation. E. J. McWeeney.
23 *Embalmment of Septic Wounds. L. Mencière.
24 Prevention of Frost-Bites. S. Delépine.
25 Radium and Its Efficacy in Cancer of Vulva. Report of Case. T. Oliver.
26 Successful Method for Extermination of Vermin Infesting Troops. S. M. Copeman.
27 *Simple Method of Administering Drugs under War and Other Strenuous Conditions. F. W. Tunnicliffe.
28 Treatment of Persistent Diphtheria Infection by Means of Diphtheria Endotoxin. R. T. Hewlett.
29 Roentgen Ray Director for Removal of Foreign Bodies in Tissues. W. I. Bruce.

23. **Embalmment of Septic Wounds.**—The following is the treatment recommended by Mencière. Successive washings of the wound with the three antiseptics after atypical operations when, as often, necessary. Embalmment of the wound (permanent dressing) with gauze wicks soaked in the solution, the formula of which will be found below. For three or four days wash again with the three antiseptics—mercuric chlorid, 1:1,000; phenol, 1:40; hydrogen peroxid, 1:3—after which, remembering the susceptibility of the cells, only wash with hydrogen peroxid 1:3 or 1:4 and again embalm. Repeat the dressing daily. Mencière says it is a mistake to advise that the dressings should not be removed. A wound which is closing up necessitates an intense phagocytosis, an irruption of white cells which clog the wound and which form a liquid which it is always best to evacuate in order to avoid resorption. It is for this reason, too, that one must not close the wounds, but drain them freely with glass drains. Embalmment of wounds thus, following the formula given further on, is a powerful antiseptic deadly to microbes but sparing the cells, calling forth the phagocytes and constituting a stimulant to the wound. It is the means with which Mencière has succeeded best after having tried nearly everything—formol, salicylic acid, tincture of iodin and iodin vapor itself.

He does not decry tincture of iodin employed for a first dressing, but this method cannot be repeated, for if it kills the microbes it also causes necrosis of cells and leaves a surface which is an excellent culture medium, but not a good defense. The Mencière formula is as follows: Solution *A*, iodoform, 10 gm.; guaiacol, 10 gm.; eucalyptol, 10 gm.; balsam of Peru, 30 gm.; ether, 100 gm., to be used to soak the wicks of gauze or to be injected into the sinuses with a Roux's syringe. If hydrogen peroxid is lacking, or if one is prodigal, solution *B* may be used for washing the wound before embalmment. Solution *B* differs from *A* only in the quantity of ether, which is 1,000 gm. instead of the 100 of solution *A*. In case of idiosyncrasy or intolerance after a few days treatment (which is exceptional) omit the iodoform from the formula.

27. **Administering Drugs in War.**—The method which Tunnicliffe has employed is to prescribe the drug to be given in a semisolid aromatic base and to close the mass in a collapsible tube such as is generally used to contain remedies for external application. By varying the composition of the base in glycerin, bismuth base, agar-agar, etc., all climatic conditions can be allowed for. With a given base the weight of a given length of jet is practically constant, and by this means an accurate dosage can be obtained. The medicinal creams the author has had made so far all have the same dose, namely, 1 linear inch of the exuded jet. An inch can easily be measured against the last joint of the thumb and can practically always be accurately guessed. As a constituent of the base Tunnicliffe prescribes some aromatic substance which promotes salivation and thus reflexly stimulates swallowing. He has prepared, for instance, a chlorodyne cream containing up to 30 minims to the inch and a morphin cream containing up to 2 grains to the inch. The inch of jet can be severed from the nozzle of the tube against the patient's teeth, or if he is more or less unconscious it can be dabbed off on the back of his tongue.

Archives Mensuelles d'Obstét. et de Gyn., Paris

September, III, No. 9, pp. 97-144

30 Hypophysis Extract in Obstetrics. K. A. Esbensen.

Bulletin de l'Académie de Médecine, Paris

January 12, LXXII, No. 2, pp. 47-62

31 *Seton Treatment of Path of Bullet Passing through Limb. F. Jousseaume and R. R. Blanchard.
32 *Passive Ischemia in Treatment of Frozen Limbs. (Traitement des gelures par la methode bio-kinétique de L. Jacquet.) F. Debat.
33 Prophylaxis of Tetanus. Sieur.
34 Reading without Glasses when Power of Accommodation is Defective. (La lecture sans lunette pour certains presbytes.) Lesage.
35 Foreign Substances in Deep Wounds may Float out on Foam of Hydrogen Dioxid. P. Lacroix.
36 Circumscribed Lumbar-Sacral Edema Early Sign of Deep Chronic Peritonitis. E. Lenoble.

January 19, No. 3, pp. 63-124

37 *Wounds of Nerves. (Sur les traumatismes des nerfs par les projectiles et les opérations qu'ils réclament.) E. Delorme.
38 Total Deafness from Explosion of Shell. (Des surdités totales par éclatement d'obus.) Lannois and Chavanne.
39 *Treatment of Gangrenous Wounds in War. E. Quénu.
40 Colloidal Gold in Treatment of Wounds in War. R. Belbèze.
41 Treatment of Ocular Tuberculosis with Tuberculins plus Antituberculosis Serum. A. Darier.

31. **Seton for Path of Bullet.**—Jousseaume here relates an old experience of his. He ran the end of a roll of tape through the passage tunneled through a patient's shoulder by a bullet. The roll of tape was kept protected, and the outer end was pulled farther through each day and cut off. The tape brought with it the pus and foreign substances in the wound and recovery was soon complete.

32. **Passive Ischemia in Prophylaxis and Treatment of Freezing Injuries.**—Debat has witnessed remarkable benefit from the measure described in these columns Feb. 13, 1915, p. 622, abst. 44. It is known as Jacquet's biokinetic method, and it wards off threatened freezing and helps to cure the consequences when the limb has been frozen. The intense vasoconstriction induced by the cold is counteracted by massage and exercise, the patient lying on his back and raising the leg perpendicularly, holding it in this position with both hands. The toes and ankle are worked vigorously and fast. This is kept up for five minutes and repeated every hour.

In the intervals the man reclines with the foot slightly elevated.

37. **Operative Treatment of Bullet or Shell Wounds of Nerves.**—Delorme has applied in ninety cases various operative measures, as he describes in detail with twenty illustrations. He declares that the suture of certain nerves is as delicate a procedure as the making of jewelry, but that few surgical measures give such gratifying results. Proper operative treatment requires the cooperation of the surgeon, a neurologist, an expert in electrotherapy and a physician skilled in histologic technic. He comments on the destructive lesions from bullet and shell injuries, so different from the clean cut of a stab wound. In treatment he seeks to cut away all the fibrous tissue interrupting the continuity of the nerve and thus produce a linear surgical cicatrix, loosening the nerve above and below far enough to permit coaptation of the stumps when the limb is placed in an attitude which relaxes the nerve. If the gap is too long to be thus bridged, a plastic operation should be done on the nerve. In cutting away the interposing cicatricial tissue he makes one transverse section after another, until sound tissue is reached, thus cutting off narrow slices and examining each in turn for sound nerve fibers. The various types of such injuries are discussed in turn and the special treatment for each. The immediate results have been good in his cases and there has been partial return of sensibility in a number; the interval since has been too brief for estimate of the ultimate outcome. The injury of the nerve had entailed persisting paralysis in all, rebellious to all medical measures, and there was already considerable atrophy.

39. **Prophylaxis of Gangrene.**—Quénu remarks that the conviction is becoming general that ample opening up of the wound is the main factor in warding off and treating gangrene in wounds. The aim is to permit free access of air to every part, not leaving a chink or crevice anywhere to serve as a nest for anaerobic germs. Hydrogen peroxid or cinchona powder are useful adjuvants and may prove all that is needed for superficial tunnels and small gangrenous wounds. For severe wounds, however, he scorches the tissues with air heated to 700 or 800 C. (1292 to 1472 F.). This transforms an exuding into a dry gangrene, and in several years' use of the apparatus he has found it of unfailing benefit. Since the war came on he has used it in twenty severe cases of gangrene from shrapnel wounds, and all his patients recovered except one who had gangrenous wounds in shoulder and hip and whose leg was completely gangrenous. The superheated air requires general anesthesia for its application, and it takes from fifteen to thirty minutes to do its work. The eschar that forms is very thin, as he has established by experimental research that the hot air does not char below the surface.

Presse Médicale, Paris

January 21, XXIII, No. 3, pp. 17-24

42 Access to the Radial Nerve. (La recherche du nerf radial au bras.) A. Gosset, J. Pascalis and J. Charrier.
43 Prophylaxis of Typhus and Relapsing Fever. C. Nicolle and E. Conseil.
44 Treatment of Freezing Injuries. (Traitement des gelures par la méthode biokinétique de L. Jacquet.) A. Courcoux. (Les gelures et la gangrène de congélation.) L. Imbert.
45 Treatment and Prognosis of Tetanus. Nigay.
46 Treatment of Gas Gangrene in English Field Hospitals. G.-V. Legros.

January 28, No. 4, pp. 25-32

47 Salvarsan in Treatment of Gangrene; Seven Cases. (Traitement des gangrènes par l'arsénobenzol.) G. Lacapère and C. Lenormant.
48 Immobilization for Compound Fractures. Vignard.
49 Improved Arrangement for Imaginary Planes for the Topography of the Skull. (Lignes de repère pour les principales déterminations de topographie craniocérébrale.) Ferron.

Berliner klinische Wochenschrift, Berlin

January 18, LII, No. 3, pp. 45-68

50 Gunshot Wounds of Blood Vessels. (Schussverletzungen der Blutgefasse.) F. Honigmann.
51 Food of the Populace during War Conditions. (Die Anpassung der deutschen Volksernährung an die Kriegslage.) C. Oppenheimer. Commenced in No. 2.
52 Agglutination Test Positive after Antityphoid Inoculation. (Bedeutung der Widal'schen Reaktion bei typhusgeimpften Soldaten.) L. Dünner.
53 *Pathology and Treatment of Pyelitis. C. Posner.

January 25, No. 4, pp. 69-96

54 Accumulation of Bile in Peritoneal Cavity after Bullet Pierces Liver. (Cholaskos nach Schuss durch die Leber.) L. Landau.
55 *Resection of Chest Wall for Tuberculosis and Bronchiectasia. (Extrapleurale Thorakoplastik.) W. Zinn and R. Mühsam. Commenced in No. 3.
56 Action of Human Serum on Trypanosomes. F. Rosenthal and E. Kleemann.
57 Pulmonary Tuberculosis with Cavities in Infants. (Cavernöse Lungentuberkulose beim Säugling.) H. Bergmann.
58 Venereal Disease in the Army. (Geschlechtsleben und Geschlechtskrankheiten in den Heeren, im Kriege und Frieden.) K. Touton. Commenced in No. 1.

53. **Pyelitis.**—Posner comments on the comparatively recently established fact that the bacteria found in the diseased kidney pelvis are not exclusively those from the urinary passages below. This shows that the infection is not always of ascending but may be of blood-borne or metastatic origin, and this is of great importance for treatment. A true gonococcus pyelitis has scarcely ever been encountered; other germs are usually responsible for the inflammation, especially the colon bacillus. The blood-borne or metastatic origin of tuberculous processes in the kidneys has now been established beyond question, and the same must be accepted for the colon bacillus. C. Franke recently demonstrated an actual direct connection through the lymphatics between the colon and the right kidney which explains the preponderance of right pyelitis. The pediatrists have also recently called attention to the comparative frequency of bacteriuria following extreme constipation, while the lower urinary passages remain persistently normal. Bumm has recently reported a significant case; intestinal trouble developed after excessive ingestion of milk and pyelitis followed, both promptly subsiding as the milk was discontinued.

Posner believes that the pyelitis may be of ascending or of blood or lymph-borne origin, but regards the latter as more common. He has encountered cases in which the pyelitis dragged along for months or kept constantly recurring but healed promptly under daily rinsing out of the bladder with weak silver nitrate solution in addition to the usual general measures. The pyelitis may have been started by metastatic infection from the intestines, middle ear or other infectious process, but the pyelitis was kept alight by the secondary infection in the bladder and the muscular insufficiency on the part of the ureters. The stretching of the bladder in local treatment may by reflex action rouse the kidney pelvis to contract and thus expel its contents better. He relates a striking instance of this kind, showing the sequence of bowel trouble, pyelitis and, later, cystitis, and the cure of the chronically recurring pyelitis by treatment of the bladder alone. He mentions, parenthetically, the great benefit in some cases of pregnancy pyelitis, from systematic drainage of the kidney pelvis by catheterization of the ureter. Brongersma kept it up for 118 days, changing the catheter every eight or ten days, and thus enabling the pregnancy to be carried to term.

55. **Resection of Chest Wall in Treatment of Tuberculosis and Bronchiectasis.**—Zinn and Mühsam have had considerable experience with what they call extrapleural thoracoplastics, and here give an illustrated description of some of their seven surviving out of nine cases of empyema, and of the three surviving in the six bronchiectasis cases. The operation makes considerable demands on the patients' strength and there is much pain afterward. Sedatives to relieve this check the tendency to cough, and this in turn arrests expectoration and the stagnating secretions are liable to induce fever, especially in the bronchiectasis cases. The benefit finally realized, however, compensates, they declare, for all that has been gone through. The results with old empyema depend on the patient's recuperating powers, and hence the operation should not be delayed too long. In the five cases in which the operation was done to immobilize a tuberculous process in the lung, the results were most gratifying in four cases. The indications were for artificial

pneumothorax, but when adhesions prevent this, then the "extrapleural thoracoplastics" is the most available substitute for it, and frequently is followed by surprising improvement.

Deutsche medizinische Wochenschrift, Berlin

January 21, XLI, No. 4, pp. 93-120

59 The Food Supply and the Diet for the Sick. (Kriegsernährung und Krankendiät.) H. Strauss.
60 *Wounds of the Abdomen. (Bauchschüsse.) W. Carl.
61 Cicatricial Displacement of the Stomach. (Pylorusstenose und Magenverlagerung durch perigastritische Verwachsungen als Folge eines Schusses.) H. Silbergleit and A. Veith.
62 The Connective Tissue Changes in Plasma Cultures. (Die Bindegewebsveränderungen in Plasmakulturen.) P. Grawitz.
63 Cleansing Syringe for the Anus to Ward Off and Treat Hemorrhoids: the Anicure. M. v. Lenhossek.
64 Venereal Disease in the Army. (Zur Prophylaxe der Geschlechtskrankheiten im Felde.) K. Mendel and A. Buschke.
65 Treatment of Tetanus. Wienert.
66 *Atomizer for Applying Tincture of Iodin, etc. (Iodtinktur, Perubalsam und Wasserstoffsuperoxyd mittels Zerstäuber angewandt.) Dedolph.

January 28, No. 5, pp. 121-152

67 *Aneurysms from Wounds in War. (Ueber Kriegsaneurysmen.) A. Bier. Continued.
68 Wounds of the Esophagus. (Einige Kriegsverletzungen des Oesophagus.) O. Madelung.
69 *Metastasis of Furuncles. (Erfahrungen über Furunkelmetastasen.) B. Riedel. Commenced in No. 4.
70 Hemorrhage from Wounds. (Zur Behandlung der kriegschirurgischen Blutung.) Wiewiorowski.
71 The Question of Splints. (Zur Schienenfrage.) M. Fritz.
72 *Directions for Reducing Crippling to the Minimum. (12 Gebote zur Verhütung des Krüppeltums bei unseren Kriegs-Verwundeten.) A. Ritschl.
73 Oxaluria. L. Pincussohn.
74 *Urease Test for Urea in Small Amounts of Body Fluids. (Eine einfache Methode der quantitativen Harnstoffbestimmung in kleinen Blutmengen für die Zwecke der Nierendiagnostik.) A. Hahn.
75 Dysenteriform Intestinal Disease. (Ruhrähnliche Darmerkrankungen.) Alter.
76 Foreign Bodies Left Behind at Operations Viewed from Medico-legal Standpoint. (Das Zurückbleiben von Fremdkörpern bei der Operation und die Reichsgerichtsentscheidung vom 14. Juli, 1913.) E. Martin. Commenced in No. 4. (Die Verantwortlichkeit des Operateurs.) J. Kohler and Ebermayer.

60. **Abdominal Wounds.**—Carl writes from his experience at a base hospital at Königsberg. The journey from the battlefield takes at least twenty hours, so that abdominal wounds receive absolutely conservative treatment, morphin to keep the bowel quiet, and not a drop to eat or drink for two days or longer. The lips are repeatedly moistened and 1,500 or 2,000 c.c. of a saline infusion is given daily. If no fresh blood oozes through the anus, saline is given by proctoclysis several times a day. The patient is kept on the same litter without changing to a bed, and he is not allowed to get up for two weeks, no matter how well he feels. Heat to the abdomen seems to hasten the processes of repair. The head of the couch is raised so the slope is as steep as the patient can bear. If there is nausea or eructation, the stomach is rinsed out. Among the 48 patients treated on these principles, only 23 developed peritonitis; 14 per cent. are ready to return to the front, and 38.75 per cent. died. Necropsy in the 18 fatal cases showed that conditions were beyond repair if an operation had been attempted.

66. **Improved Technic for Sterilization with Tincture of Iodin.**—Dedolph applies the tincture of iodin with an atomizer. The spray penetrates into every crevice, the fingers are not stained, there is no loss of the drug as when it is applied on cotton which is then thrown away. Another advantage is that the patient is spared the pain of contact as the wound is not touched except by the spray. Sloping and low, hidden surfaces can be reached better by the spray than by fluid.

67. **War Aneurysms.**—Bier has operated in less than two months in forty-four cases of aneurysm following a gunshot injury of a blood vessel. The walls of the sac are formed of fascia or muscle and clotted blood, the blood still circulating in the cavity left in the center. Some of the men had severe pain in the limb, edema and contractions; others had little disturbance except that the limb tired easily. Hemorrhage and infection compelled operative treatment in some of the cases, and in all the outcome was most excellent. The hole in the artery was exposed and sutured after the blood had been expelled from the limb down to the aneurysm but not below. The minutest injuries of the vessels below then become apparent by oozing of blood and can be attended to. In only comparatively few cases was it necessary to ligate the artery above and below the aneurysm.

69. **Metastasis of Furuncles.**—Riedel has encountered five cases of fatal thrombophlebitis in robust men, the consequence of a furuncle in the face or side of the neck in front. Another patient, a woman of 23, succumbed to thrombophlebitis from an apparently harmless pimple on the inside of her nostril. A man died from thrombophlebitis set up by a felon in the thumb. Riedel has also repeatedly witnessed thrombophlebitis develop from some injury of the forearm or fingers. The thrombophlebitis in all the preceding cases developed rapidly, especially when the veins of the face were involved.

Metastasis from a furuncle is more common, and it develops slowly and insidiously. Weeks, months or years may elapse before the metastasis becomes apparent. In his 54 cases of metastasis from a furuncle, carbuncle or felon, 13 of the patients died, a larger percentage than in his thrombophlebitis cases. All the 54 patients were otherwise healthy. In 14 cases the metastasis involved the bone, and in 6 of these was near the original focus. In 2 cases the vertebrae just below the furuncle developed the metastasis. In 5 cases metastasis was in the femur although the furuncle had been at a distant point. Three died of the 8 children among the 14 patients in this bone group. This fatality proportion corresponds to his experience with osteomyelitis in general. Of the 40 patients with metastasis in the soft parts only one was a child. In 3 cases metastasis was in the brain and proved fatal; in other cases it was in the eyes, thyroid, lung, epididymis, or muscles, all with favorable outcome. In one case it was in the thymus and proved fatal; 5 of the 14 patients with metastasis in the perirenal fat tissue, died as did also one patient with metastasis in the shoulder following a furuncle at the back of the neck. One robust man of 38 succumbed to a brain abscess seven years after a felon with metastasis at the back of the neck. He had complained of left headache nearly constantly since. It had been diagnosed "neurasthenic neuralgia" until he developed fever. An abscess in the temporal region was evacuated and a deeper one was found at necropsy.

Riedel's conclusions from these experiences emphasize the importance of treatment of every furuncle, as its consequences are incalculable. Superficial furuncles can be treated conservatively, merely shaving off the outer skin and covering and dressing thick with a salve to soften up and help the casting off of the plug. If infiltration develops rapidly and there is much pain, he advocates a crucial incision down through the plug after spraying with ether. The ether spray is not effectual unless the blood is expelled from the region. Deep-seated furuncles should be incised without any delay, and carbuncles should be cut out entire under general anesthesia. Petrolatum is not a good salve for furuncles; it dries out too soon. He prefers a salve with some resin in it, especially ointment of elemi.

72. **The "Twelve Commandments in Regard to Prevention of Crippling."**—A set of rules has been placarded broadcast throughout the hospitals in Germany and at the front. They impress the facts that repose is harmful for both joints and muscles, making joints stiff and muscles weak and emaciated; that time, trouble and expense will be saved by striving to ward off all disturbances in motor functioning, and by insisting on prompt orthopedic or mechanical after-treatment if such becomes necessary. "4. Shorten as much as possible the period when the joint is kept still; have it exercised as soon as possible and change its angle frequently. Keep up the strength in the muscles menaced by the enforced repose, having massage and electricity applied early and systematically, with active exercises. 5. Remember that the extensor muscles deteriorate faster than the flexors; pay special attention to the deltoid muscle in the arm and the quadriceps in

the knee, for the arm and leg can not be used properly if the extensors are weakened. 6. In immobilizing, place the shoulder, elbow, wrist, fingers, knee and other joints in the position most favorable for their functional use later," as is described for each in turn.

"7. Do not allow the hand to droop from its own weight when the arm is in a sling, as this favors stiffness of the fingers and prevents grasping movements. 8. Leave the fingers exposed so they can be worked freely, and warn the patient to keep them continuously working vigorously to ward off stiffness. Save enough of the hand to grasp things with if possible, as there is no feeling in an artificial hand, and it is thus decidedly inferior to even a mutilated stump that can still grasp articles. 9. Stimulate the circulation by exercising the legs and by deep breathing even when the man is unable to be up, as stimulating the circulation has a beneficial action throughout the body, promoting nutritional processes and repair in general. 10. Get rid of extravasated blood by measures to promote absorption, etc., such as raising the limb, massage, heat, alternating hot and cold douches, as blood coagulating in the tissues keeps up a constant irritation, entailing adhesions and binding together the tissues in the region involved. When connective-tissue adhesions develop, there is no possibility of absorption later. Remember that the circulation of blood and lymph is most sluggish toward the ends of the limbs, so that artificial aid is particularly required for extravasated blood in these regions." The last "commandment" warns not to disregard the mechanical factors involved, "for our motor apparatus is a marvellous mechanical apparatus, and only those who understand the mechanism of a machine and are good mechanics are able to start a complicated mechanical apparatus to work again."

74. **Urease Test for Urea in Blood.**—Hahn says that further experience has confirmed the precision and reliability of the soy bean urease test, applied to the urine according to the Hahn-Saphra technic. He also describes a simple method for determining the presence of urea in the blood or effusions with the soy bean urease; the alkalinity is determined by the iodin test. With the technic described, reliable results are obtained with very small amounts of blood and other fluids. No special apparatus is required and the findings with the test give an instructive insight into the retention of nitrogen in the blood, and are a means of estimating the functional capacity of the kidneys. Hahn says that it is unnecessary to use a precipitate of the soy bean ferment. A mechanically cleansed and dried soy bean flour with the fat removed answers every purpose.

Medizinische Klinik, Berlin

January 17, XI, No. 3, pp. 61-88

77 *Treatment of Fracture with Walking Extension. (Erfahrungen über die Behandlung von Schussknochenbrüchen mit Distractionsklammerverbänden.) P. T. L. Hackenbruch (Wiesbaden).
78 Sympathetic Ophthalmia from War Wounds of the Eyes. (Augenverletzungen im Kriege und ihre Behandlung.) C. Adam.
79 *Bullet Removed from Pericardium; Recovery. (Schuss in den Herzbeutel.) Jenckel.
80 *Pathogenesis and Symptoms of Chlorosis. N. v. Jagic.
81 Soft Chancre Plus Ignored Syphilis. G. Quarelli and F. Negro.
82 Present Status of Abortion. (Zum gegenwärtigen Stande der Abortfrage.) O. Rupp. Commenced in No. 2.
83 Treatment of Freezing Injuries. (Erfrierungen.) O. Nordmann.

77. **Extension Braces for Fractures.**—The standard for each end of the long brace is fastened solidly in the plaster cast; then by turning a nut in the center of the brace the ends are pushed apart as far as is needed. The extension can thus be regulated at any moment and the brace and cast are made light enough so the patient can walk around while the fractured bone is knitting together again, the ends held in proper place by the stretching of the segment of the limb. The article has eighteen illustrations showing the application of the brace to the arm, ankle, thigh and leg, and the correction of the displacement of the long bones realized with it. The joints above and below are left exposed to permit normal use of the limb. From almost the first the limb can be moved actively without pain, so that men with badly shattered long bones thus are able to be up and about. In treatment of the wounds in war the *Distractionsklammer* has proved remarkably convenient and efficient, surpassing Hackenbruch's highest anticipations.

79. **Bullet in the Pericardium.**—The young man had been shot in the second left interspace and had hemoptysis for a few days but there was no fever for nearly six weeks, merely signs of effusion in the pericardium. The operation the sixth week, when the temperature ran up, released a large amount of the sterile, blood-stained effusion and, when the trunk was raised, the bullet dropped down from where it had been lying on the right auricle. The pericardium was rinsed out with saline and some saline was left in it to prevent adhesions after suturing. Recovery was prompt. The heart had had to work for so many weeks hampered by the bullet, that slight hypertrophy and dilatation were left.

80. **Chlorosis.**—Von Jagic agrees with those who think that the basis of chlorosis is some constitutional anomaly analogous to the status hypoplasticus or lymphaticus. Girls without this constitutional predisposition may become anemic, debilitated, tuberculous or may starve, but they do not develop chlorosis. It is encountered as well among the well-to-do as in the working classes, but it is not so common as generally assumed, many cases being erroneously so labeled. This term should be restricted to true chlorosis which is a malady resulting from disturbances in the internal secretions of the genital organs and entails disturbances in blood production and especially in production of hemoglobin. It demonstrates the close connection between the internal secretion of the ovaries and blood production. The interaction of all the ductless glands is also probably a factor in chlorosis. In the Abderhalden test, ovarian and uterus substance is digested in chlorosis.

Menstruation is not normal in girls with chlorosis. Von Noorden found deficient menstruation in 77.2 per cent. of his cases of chlorosis. Von Jagic goes so far as to maintain that normal conditions in regard to menstruation practically exclude chlorosis. The primary and secondary sexual characters ripen early with chlorosis; the breasts are well developed as a rule, possibly a trifle too full. Low hemoglobin percentage may accompany unusually large numbers of red cells, but in chlorosis the color index is unusually low. This latter may be the case even when the reds are increasing under iron and the hemoglobin percentage is normal. Absolute lymphocytosis may be encountered, especially when the thyroid is involved. Lymphocytosis, and particularly mononucleosis, must be regarded as one of the signs of physical inferiority, particularly in persons of the hypoplastic type. Another frequent finding in chlorosis is the high position of the diaphragm; even when reclining the respiration is shallow, the diaphragm not making properly deep excursions on account of the infantile position of the ribs. The constitutional inferiority may be manifested further by narrow blood vessels and vulnerable endocardium. Pronounced mitral defects are not uncommon in women who have passed through severe chlorosis but with no history of serious infection at any time.

Münchener medizinische Wochenschrift, Munich

January 19, LXII, No. 3, pp. 73-104

84 Deep Roentgen Treatment of Gastro-Intestinal Cancer. J. Decker and H. v. Bombard.
85 The German Medical School for Chinese at Shanghai. W. Fischer. Concluded in No. 4.
86 *Gunshot Wounds of the Lungs. (Lungenschüsse.) E. Toenniessen, A. Böttner and C. Ritter.
87 Resistance of Chest to Septic Infection. P. Reiche.
88 Gunshot Wounds of the Chest. R. von den Velden.
89 Basophile Granules in the Blood after Shrapnel Wounds. (Basophile Granulation im Blute von Schrapnellkugelträgern.) H. Lipp.
90 Action of Various Types of Bullets on the Human Body. M. Kirschner.
91 Wounds of the Eyes. B. Fleischer.
92 *Suture of Nerves. (Zur Frage der Nervennaht.) W. Spielmeyer. Commenced in No. 2.

86. **Wounds of the Lungs in War.**—The various reports here given embrace well over 200 cases of gunshot injury of the lungs. All report that the outcome in the cases reaching the base hospitals was surprisingly good. Toenniessen found that the presence of the bullet in the thorax did not

seem to influence the clinical course. There was no abscess or gangrene in any of his 56 cases, and there has been nothing so far to indicate that tuberculous processes have flared up under the injury. Böttner noticed that the abdominal walls were rigid in four of his thirty cases, although the bullet had passed through the chest alone. Conservative measures were almost always applied as, according to Ritter, it was found that even when the soft parts around the entering bullet hole showed severe infection yet the chest within was not infected, as a rule. Repeated puncture of the pleura confirmed this. When the fluid in the pleura showed infection, no time was lost in clearing out the fluid and extravasated blood. Gas gangrene of the lungs calls for immediate excision; in one such case emphysema in the neck was the first sign of the gas gangrene in the lung below.

92. **Suture of Nerves.**—Spielmeyer emphasizes that the central stump of a nerve long retains its capacity to sprout new fibers, and consequently that it is of little moment when the nerve is sutured during the first four or six months after the injury. The prognosis depends more on the location and extent of the injury, the peripheral nerves having a greater proliferating power than those more centrally located. The general health is an important factor in the outcome. Some typical bullet injuries of nerves are illustrated. They show among other things that even when a bullet has not completely severed the nerve, the bridge left suffers from contusion and extravasated blood and the cicatricial tissue that forms is too compact for the sprouting nerve fibers to penetrate. They are turned aside and the continuity of the nerve is not likely to be restored without operative intervention.

Wiener klinische Wochenschrift, Vienna

January 21, XXVIII, No. 3, pp. 57-84

93 *Infections with Bacteria of Paratyphoid Group. A. Heigel.
94 Tetanus. (Zur Prognose und Therapie des Wundstarrkrampfes.) O. Chiari.
95 *Positive Wassermann Reaction in Pemphigus. M. Hesse.
96 Vaccine Therapy of Typhoid. (Bakteriotherapie des Typhus abdominalis.) S. Mazza.

93. **Bacteria of the Paratyphoid Group.**—Heigel found signs of an acute catarrhal enteritis at necropsy of a two-weeks infant succumbing to umbilical sepsis, and he cultivated from the bowel tissues a bacillus similar to paratyphoid bacilli only that it did not agglutinate with these and that the indol reaction was positive as also fermentation of sugar. He has also cultivated a paratyphoid bacillus from an abscess in the liver of a woman dying of cancer at the papilla of Vater. This bacillus differed from ordinary paratyphoid bacilli and Gaertner's bacterium only by the absence of agglutination. He knows of no other instance on record of a liver abscess apparently exclusively the work of paratyphoid bacilli. The communication issues from the Institute of Pathologic Anatomy at Prague, but the writer fell in battle November 3.

95. **The Wassermann Reaction in Pemphigus.**—Hesse calls attention to the pronounced response to the Wassermann test he obtained in nine of eleven cases of pemphigus. With one exception there was nothing to indicate syphilis in any case.

Zentralblatt für Chirurgie, Leipzig

January 16, XLII, No. 3, pp. 33-48

97 Dislocation and Fracture of Upper End of the Fibula with the Tibia Intact. (Verrenkungsbruch des oberen Schienbeinendes mit Erhaltung des Wadenbeins: Eine typische Verletzung.) H. Riedl.

January 23, No. 4, pp. 49-64

98 *Symptoms and Treatment of Fracture of the Patella. F. Schultze.

98. **Fracture of the Patella.**—Schultze declares that there never is any diastasis with fracture of the patella unless the quadriceps is ruptured too. With this intact, even extreme flexion does not cause the parts of the broken bone to separate. The absence of diastasis therefore shows that the fracture of the patella is not accompanied by laceration of the stretching apparatus, and hence there is no need for operative intervention. If the extensor apparatus is torn, however, normal functioning can never be regained without an operation. A Roentgen picture of the knee in exaggerated flexion thus shows at once whether an operation is necessary or not.

Zentralblatt für Gynäkologie, Leipzig

January 16, XXXIX, No. 3, pp. 33-48

99 *Gynecologic Cholesterinemia Test. (Zur Bestimmung des Gesamtcholesterins im Blute an geburtshilflichen und gynäkologischen Fällen.) M. Huffmann.

January 23, No. 4, pp. 49-64

100 *Treatment of Pregnancy Kidney and Eclampsia. W. Gessner.

99. **The Cholesterin in the Blood During Pregnancy.**—Huffmann examined a large number of normal men and women to ascertain the normal cholesterin content of the blood, and then compared with this standard the findings in women at different periods during a pregnancy. It gradually increases during gestation, reaching its highest point in the last months, and then it drops to normal in eight or ten days, irrespective of lactation. The blood from the umbilical cord shows a low cholesterin content, regardless of the findings in the maternal blood. The maximum cholesterin content was found in eclampsia. It does not seem to vary with menstruation but rises during general anesthesia. It is low with cancer.

100. **Pregnancy Kidney and Eclampsia.**—Gessner queries whether these two conditions are the primary disturbance and the state of intoxication is a secondary phenomenon, or whether the reverse is the truth. He is inclined to think that the kidney disturbance is the primary trouble, and that this is the result of disturbance in the circulation in the kidney as it is pushed out of place by the enlarging uterus. A normal kidney yields readily and there is no disturbance, but if the adipose capsule is unusually thick or, for any other reason, the kidney is not freely movable and thus is unable to yield to the pressure from the enlarging uterus, there is traction on the pedicle, the circulation is interfered with and there is mischief at once. Neither in puerperal ischuria nor in pregnancy kidney nor eclampsia do the bladder and kidneys show any signs of inflammation; the disturbances all indicate merely impeded circulation through the organ. This disturbance in the circulation in the kidneys is the primary trouble, and this brings the intoxication in its train.

The logical conclusion is that in treatment of eclampsia the first thing is to relieve the traction or compression of the kidney, and the only way to do this promptly and effectually is to empty the uterus. Version should not be attempted as this impedes the circulation still more. If immediate delivery by the natural route is not practicable, then he urges extraperitoneal cesarean section according to O. Küstner, supplementing this technic by severing the vesicouterine ligaments which are the main factors in the traction on the urinary apparatus. By severing these ligaments this cuts the connections between the cervix and the neck of the bladder; even if the ligaments grow together again, they are liable to stretch more readily at subsequent pregnancies. With merely pregnancy kidney, no attempt should be made to sever these ligaments, as any manipulation of them is liable to interrupt the pregnancy. The kidney must be relieved from traction, however, and he advises cutting the ureter on that side and implanting the renal stump in the colon or appendix. This operation has often been successfully done when part of the ureter has been injured in some accident. As the traction is usually most severe on the right kidney, this should be the one first attacked. After all trouble is over, it is not a difficult matter to reunite the ureter stumps. He thinks this active treatment is much better than relying on keeping the patient under the influence of sedatives as with Stroganoff's prophylactic method, etc.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 14, XXXVI, No. 4, pp. 49-64

101 *Swallowing of Air Masks Syndromes. (Aerofagie associate.) L. Dezzi.
102 *Death after Intraspinal Injection of Novocain. C. Scandola.

January 17, No. 5, pp. 65-80

103 *Poisonings from Mercuric Chlorid in Italy. (Avvelenamenti da sublimato corrosivo in Italia.) L. Sabbatani.

104 Varnish in Dressing Wounds. (Sull' uso di un mastice adesive liquido in chirurgia.) C. Mariani.

January 21, No. 6, pp. 81-96

105 Case of Familial Spastic Spinal Paralysis. U. Montanari.
106 Benzin Excellent Substitute for Alcohol in Tincture of Iodin. G. Gremonese.
107 *Local Injections of Iodin in Treatment of Goiter. (Cura del gozzo col metodo di Luton.) I. Tansini.

January 24, No. 7, pp. 97-112

108 Dangers from Injection of Insoluble Preparations of Mercury. G. Recupero.
109 Treatment of Epitheliomas with the Active Principle of Jequirity. C. Chiri.

101. **Clinical Picture Masked by Swallowing of Air.**—Dozzi refers in particular to the cases in which some serious organic disturbance is heedlessly credited to "gas in the stomach," and thus the period for effectual treatment is allowed to slip past. The two affections in which this is most liable to occur are disease of the coronary arteries and latent ulcer in the stomach or duodenum. He relates a number of instances in which the disturbance from coronary mischief was assumed to be merely the discomfort from swallowed air. He cites the case of a prominent physician at Paris who died at 40 from this cause, his latent syphilis, the cause of the arterial trouble, ignored and hence untreated. With the Wassermann reaction we are better equipped now to detect syphilitic arterial trouble if the possibility is borne in mind that the disturbance may be more than mere discomfort from a habit of aerophagy. He has found that the swallowing of air may not only impede digestion but prevent proper utilization of drugs given by the mouth.

102. **Death Following Intraspinal Injection of Novocain.**—Scandola's patient was a priest, 69 years old, with signs of a mild myocarditis so that when a herniotomy was undertaken the lumbar route for anesthesia was chosen rather than that by inhalation, and only a small amount of the novocain solution was injected. The patient bore the operation well and seemed to be in the best of condition that night but the next day there was some delirium and signs of paresis of the intestines gradually became evident, with fatal outcome the third day. The euphoric delirium had continued all the time and necropsy showed that there were no signs of peritonitis. Merusel reported last year the death of two patients of 75 and 80 after intraspinal injection of a small dose of novocain. In several other elderly patients there was subdelirium, requiring constant surveillance, but the patients recovered after four or five days. Scandola has also had phenomena of collapse in an elderly patient who recovered finally under stimulants. The spinal nervous system seems from these and other data cited to be peculiarly susceptible in the elderly.

103. **Poisonings from Mercuric Chlorid in Italy.**—Sabbatani calls attention to the progressively increasing number of cases of fatal poisoning from mercuric chlorid in Italy in the last few years; 38 per cent. of the 4,993 cases of fatal poisoning, 1903-1912, were due to this drug. This number is below the actual facts, as probably the death from bichlorid poisoning was in some instances ascribed to other causes. Assuming that only one in three or four dies, the number of cases of poisoning would therefore total six or eight thousand in the ten years in question, to a population of about 33,000,000. The average of nearly a thousand cases a year has been much surpassed in the last two years. The number of suicides by this means has increased in fifteen years from 20 in 1899 to 309 in 1912. This great increase is seen by the statistics presented to coincide with the putting on the market of bichlorid tablets, rendering the purchase of the drug so easy. Sabbatani insists on the importance of prescribing very small quantities in ordering mercuric chlorid, so that the amount will all be used up soon and none of the tablets left over.

107. **Local Injections of Iodin in Treatment of Goiter.**—Tansini regrets that Luton's method of treating goiter has fallen into disuse as he thinks it deserves a better fate. He has had constantly excellent results from it, injecting the tincture of iodin directly into the interstitial or parenchymatous tissue of the goiter. It is indicated, he reiterates, only in the cases of follicular or parenchymatous goiter, that is, only in those in which the thyroid tissue approximates most closely to normal. The disrepute into which it has fallen is the result of applying the method to cystic or colloidal goiters, or those with vascular or fibrous changes; iodin does not act on vessel or fibrous tissue nor on degenerated tissues.

In order to exclude all such cases, Tansini makes an exploratory puncture in case of doubt. Operative measures are better in the mixed cases but sometimes he has found it possible to combine resection of part of the goiter with injection of iodin in the undegenerated regions. He injects a mixture of 20 parts tincture of iodin; 1 part potassium iodid, and 40 parts distilled water, making an interstitial injection of 1, 2 or 3 c.c. at a time, making two or three injections at different points during the same sitting. He repeats the injection at first every second day and then every third or fourth day or at longer intervals according to the size of the goiter. He has never had the goiter recur in any of his cases. The intervals since the treatment range from one to several years. The injections are only rarely painful and then there is merely slight pain for a few hours at the point of the injection.

Policlinico, Rome

January 24, XXII, No. 4, pp. 113-148

110 Clinical Value of the Wassermann Reaction. T. Pontano. Commenced in No. 3.

January, Medical Section, No. 1, pp. 1-48

111 Motor Apraxia from a Lesion in the Corpus Callosum. E. Ciarla.
112 Syndrome from a Lesion in the Thalamus. F. Bonola.
113 The Finer Structure of the Thyroid Cell. D. Cervo.

Riforma Medica, Naples

January 2, XXXI, No. 1, pp. 1-28

114 Differentiation of Appendicitis. G. Rummo.
115 Apparatus to Control the Sphygmomanometer Findings. V. Maragliano.
116 Vaccines Made from Germs after Exposure to Ultraviolet Rays. R. Lanzillotta.

January 9, No. 2, pp. 29-56

117 Importance of Suprarenal Capsule in Pathogenesis of Shock. G. Romano.
118 Plural Effusion with Artificial Pneumothorax. (Pleurite pneumotoracica.) A. Fagiuoli.

January 16, No. 3, pp. 57-84

119 Echinococcus Cysts in Supraclavicular Fossa. G. Marsiglia.
120 Cardioptosis. (Morbo di Rummo.) S. Fichera.

January 23, No. 4, pp. 85-112

121 Chronic Malaria without Fever or Enlargement of Spleen. (Malaria cronica, anemizzante.) M. Ascoli.
122 Thorium X in Treatment of Cancer. F. Salvatore.
123 *Hemolytic Jaundice; Five Cases. (Sull' ittero emolitico.) P. Biffis. Commenced in No. 1.
124 Epidural Injections in Treatment of Enuresis. (Contributo terapeutico dell'enuresi notturna col metodo Albarran e Catheiin.) E. Pellecchia.

123. **Hemolytic Jaundice.**—Biffis reports five cases in adults. In none were there any signs of cholemia, and bile pigments were never detected in the urine, but only large amounts of urobilin. The urobilinuria did not seem to parallel the anemia; even when the anemia progressed to a fatal termination, in Case 3, the urobilinuria did not increase. This suggests that the fatal outcome was due not so much to the destruction of the blood as to the lack of regeneration of the blood. The enlargement of the spleen was due to mere congestion in some of the cases. The most important feature of the disease is, he repeats, the paroxysmal attacks of destruction of blood corpuscles, the *crisi de deglobulizzazione*, as he calls them. In the acquired hemolytic icterus the jaundice is of little moment while the anemia is extreme; in the congenital type the reverse is the case. All agree that medical treatment is ineffectual in the acquired type except as repose and freedom from physical or mental stress wards off exacerbations. Biffis' unfavorable experiences with splenectomy in these cases suggest the necessity for considering well before undertaking it, bearing in mind that there is no record of splenectomy having cured the affection although considerable improvement has followed it in some cases on record.

Tumori, Rome

November-December, IV, No. 3, pp. 257-372

125 *Phenomena Observed with Transplantation of Tumors in Rats. (Contributo sperimentale allo studio dei trapianti di tumore.) S. Mazza.

126 Bilateral Fibrosarcomatous Degeneration of Brachial Plexus in a Steer about Eight Years Old. E. Ravenna.

127 The Reticular Fibers in Tumors. (Sul comportamento e sulla genesi delle fibre a graticciata nei tumori.) F. Niosi.

128 *Smooth Muscle Tumors in the Stomach. (Tumori a fibre muscolari liscie dello stomaco.) F. Nassetti.

129 Superficial Endotheliomas. (Intorno ai tumori endoteliali della cute.) L. Martinotti.

125. **Transplantation of Rat Tumors.**—Mazza noticed among the other phenomena in his experimental research that the spleen was always hypertrophied in the rats with tumors. He also found that rats previously treated with human cancer tissue seemed to be refractory to inoculation of rat tumor tissue. He thinks this latter observation encourages the hope of effectual therapeutics in man along these lines.

128. **Myomas in the Stomach.**—Nassetti found smooth muscle tumors in the stomach at necropsy of seven cadavers, all but one were of males between 45 and 71; the female cadaver was of a woman of 56. The subjects had died of pulmonary tuberculosis, pneumonia, chronic enteritis, cirrhosis of the liver, arteriosclerosis or kidney stone trouble. There had been no symptoms to call attention to the stomach except hematemesis in the liver case, and here numerous varices in the esophagus might have been responsible for the vomited blood. He reviews the smooth muscle tumors in the stomach on record, having compiled 140 such cases. In 95 cases the sex is mentioned, 37 men and 58 women. In 2 cases the subjects were boys and in 2 others girls between 10 and 20; one man and one woman between 20 and 30; one man and 8 women between 30 and 40, and 5 men and 13 women between 40 and 50. No correlation was evident between the tumors and the clinical condition of the subjects. Gastric ulcer was mentioned in only 4 cases, and in some there had been a long interval between the cure of the ulcer and the discovery of the myoma. The article is to be continued.

Brazil-Medico, Rio de Janeiro

January 1, XXIX, No. 1, pp. 1-8

130 Blood-Sucking Insects in Central America. (Contribuição para o conhecimento dos hemipteros hematophagos da America Central.) A. Neiva.

131 Prophylaxis of Syphilis in Brazil. (A prophylaxia da syphilis entre nos: Contribuição historica.) W. Machado. Commenced in No. 45, Vol. XXVIII.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

January 9, LIX, No. 2, pp. 153-216

132 *Two Loose Bodies in a Knee Joint. (Gewrichtsmuizen.) D. B. Boks.

133 *Treatment of Delirium Tremens. W. F. Theunissen.

134 Mikulicz' Disease. (Symmetrische aandoening der oorspeekselklieren.) A. A. H. Van den Bergh.

135 Primary Suppurative Unilateral Parotitis in Three Infants. L. Vos.

January 13, No. 3, pp. 217-284

136 *Serodiagnosis of Tuberculosis. (Een nieuwe methode van serologisch onderzoek bij lijders aan tuberculose.) J. Hekman.

137 *Pregnancy and Pulmonary Tuberculosis. (Zwangerschap en longtuberculose. Uitkomsten van een onderzoek der gegevens door nederlandsche geneeskundigen.) C. Van Tussenbroek, B. H. Vos, H. Schut and B. J. Kouwer.

January 23, No. 4, pp. 285-348

138 Tuberculin in Diagnosis and Treatment of Pulmonary Tuberculosis. B. H. Vos.

139 Adaptation of Enzyme Production in the Saliva to Chemical Stimuli. (Over het uit ramenas, zwavelwaterstof afsplitsend enzym in het speeksel. Tevens een bijdrage tot de kennis der enzym-adaptaties.) M. H. P. P. Van Haeff.

132. **Loose Bodies in Joint.**—Boks relates that the discovery of two "joint mice" in one knee of a patient started a systematic investigation of the joints of all the cadavers he had occasion to examine. He also studied the literature on the subject. In his case the man of 74 was being treated for a gonorrheal stricture when he called attention to chronic pain and discomfort in his left knee. It was evidently the seat of a deforming arthritis, but two loose bodies were found in it. The microscope showed that the loose bodies did not show the changes of deforming arthritis, evident in the joint itself. There was a history of a contusion of this knee thirty-five years before. This probably induced an infectious process and casting off of the two scraps of bone and cartilage. Their presence in the joint or other causes started later the deforming arthritis. No other joint was affected. He thinks this case throws considerable light on "joint mice" in general as there was no evidence of proliferation of new bone but merely of hyaline cartilage tissue, alike in structure in both.

133. **Treatment of Delirium Tremens.**—Theunissen compares the mortality with delirium tremens in his service in the last six years—2 per cent. of 120 cases—with Kraepelin's reported mortality of 3 or 4 per cent., Bonhoeffer and Ziehen's 9 or 10 per cent., while Ganser has had only 1 per cent. In his own 2 fatal cases, death was due to extraneous circumstances, so that his record in reality is exceptionally good. He ascribes this to the method of treatment which consists essentially in the closest watching over the patient, looking out for a relapse or a tendency to suicide. The patient is not kept alone in a separate room unless absolutely necessary. The diet is abundant but preferably milk alone. Sedatives are given as required, and stimulants are given at the end when there is anything in the previous history to suggest danger on the part of the heart. The experiences to date with treatment on these principles have been very gratifying. The sedatives found most satisfactory are paraldehyd or amylene hydrate, either internally or by the rectum. In the two fatal cases hyoscin had been given instead. Paraldehyd acts quickly, and Theunissen states that no cases of poisoning from it are known. Even when 100 or 150 gm. have been taken with suicidal intent, the result was merely prolonged slumber without disagreeable by-effects. He has observed nothing to suggest the alleged unfavorable influence on the aorta. His experience has shown further that protracted baths are not needed in treatment of delirium tremens.

136. **Serodiagnosis of Tuberculosis.**—Hekman has worked out a method with stained tissues and stained horse fibrin which, he declares, gives promise of a technic for serodiagnosis more sensitive than the Abderhalden dialysis method. He stains the horse fibrin or human lung or kidney tissue with an aqueous solution of methylene blue or eosin, leaving it in the stain for sixteen hours and then getting rid of the superfluous stain by boiling in constantly renewed water until the water ceases to show a trace of the stain. Fibrin thus prepared can be kept in salt solution or water without giving up any of its stain. But if human serum is brought in contact with the stained fibrin the latter is digested and the fluid becomes tinted with the stain. The serum of every human being contains this substance which is able to digest stained horse serum, lung or kidney tissue, but the intensity of the action varies in different persons. No law governing this variation has yet been discovered except that the serum from persons with chronic kidney disease always digests stained kidney tissue with special energy.

The digestion of stained fibrin can be inhibited by addition of tuberculin. The fibrolytic process can also be inhibited by addition of unstained albumin or kidney tissue. When the stained fibrin is being acted on by tuberculous serum, and tuberculin is added to inhibit the fibrolysis, the inhibition is much less pronounced than when the serum used comes from a non-tuberculous subject. This is the basis of the method as applied to serodiagnosis. The figure representing the limit of dilution of the serum with which there is no further digestion of the stained fibrin, is divided by the figure representing the dilution of the serum with which the added tuberculin completely inhibits the digestion of the fibrin. The quotient of these two figures is the index for this method of serodiagnosis. The index is thus characteristically lower in the tuberculous than in non-tuberculous cases.

137. **Pregnancy and Pulmonary Tuberculosis.**—This article is a brief summary of the data supplied by 155 physicians in the Netherlands who filled out question-blanks asking for their experience with regard to the influence of a pregnancy on pulmonary tuberculosis. The detailed report is to be

published in full in a Dutch gynecologic journal and it is announced that a reprint will be sent on request to Prof. B. J. Kouwer, Utrecht. Among the question blanks filled out and returned, 54 physicians reported constantly unfavorable experiences and 27 exclusively favorable. In the 35 cases of laryngeal tuberculosis, 10 of the women survived with the pregnancy carried to normal delivery, and of the children of the 25 women with severe laryngeal tuberculosis, 7 are living. Of the total 407 cases of pregnancy in tuberculous women, the disease is said to have been aggravated in 184, while no harmful influence was apparent in 223 cases. In 192 cases the tuberculous women passed through more than one pregnancy; 56 of them died of their tuberculosis. Among these one-fifth succumbed to acute miliary tuberculosis and one-ninth in the fortnight after delivery. Many of the women passed comparatively unharmed through various complications of the pregnancy, uncontrollable vomiting, hydramnion, pregnancy nephritis, premature separation of the placenta, puerperal fever, etc., revealing remarkable resisting powers. On the whole, the results of the inquiry justify a stand against the prevailing pessimism in regard to the influence of pregnancy on pulmonary tuberculosis. The pregnant tuberculous woman needs, of course, good care, repose, nourishing food, etc.

Hospitalstidende, Copenhagen

January 27, LVIII, No. 4, pp. 81-104

140 Ringworm of Nails, Scalp and Trunk in Imbecile Girl of 12. (Et tilfælde af Trichophytia ungvium et capillitii et corporis med Kultur af Trichophyton violaceum.) H. Bang and O. Haslund.
141 *Curability of Gonorrheal Vulvovaginitis in Little Girls. (Om Prognosen for Vulvovaginitis gon. infantum.) B. Pontoppidan.

141. **Prognosis of Gonorrheal Vulvovaginitis in Little Girls.**—Pontoppidan states that in 779 cases of this kind at a Copenhagen hospital, since 1896, there were complications in 6.8 per cent. He has reexamined about 22 per cent. of the cases since 1907. In 8 of these 79 patients gonococci had been still present when the patients had been discharged from the hospital, but recurrence was known in only 2 instances. All the others seem to be clinically cured. Treatment was by local application of silver nitrate and other silver salts, the concentration varying with the age of the child. In his experience, infection occurred usually about the age of 2 and treatment required several months. In certain cases exacerbations and remissions kept up for several years but the final result seems to be a complete cure so that there is little if any danger of the affection dragging along into adult life.

Hygiea, Stockholm

LXXVI, No. 24, pp. 1361-1406

142 History of Castration. B. Gadelius.
143 *Heliotherapy of Surgical Tuberculosis. S. Johansson.

143. **Heliotherapy for Surgical Tuberculosis.**—Johansson declares that the experiences with exposure to direct sunlight in treatment of bone and joint tuberculosis have brought all to a better conception of the importance of general rather than local measures in the treatment of local tuberculous processes. He has himself given a thorough course of heliotherapy in forty cases of surgical tuberculosis at Stockholm and has been much impressed with its value as a supplement to orthopedic and surgical measures. It cannot be relied on alone.

Ugeskrift for Læger, Copenhagen

January 21, LXXVII, No. 3, pp. 79-132

144 *Clinical Study of Injury from Sunlight and Artificial Light. (Lysbetændelsernes Klinik.) A. L. Fønss.
145 Exostosis on the Tibia Causing Symptoms Simulating Loose Body in the Knee; Two Cases. N. P. Ernst.

January 28, No. 4, pp. 133-174

146 *Experiences with Elliott's Operation for Glaucoma; Forty Cases. K. K. K. Lundsgaard.
147 *Treatment of Ozena by Injection of Paraffin; Thirty Cases. N. R. Blegvad.
148 Annular Erythema; Seven Cases in Short Period in One Family. (Annulat Erytem med epidemisk Optræden.) A. L. Fønss.

144. **Injury from Light.**—Fønss discusses the nature of the rays which cause erythema, and relates the experiments by Finsen and others which have thrown light on this subject. The action of sunlight on the normal skin and eyes and of light reflected from the snow is compared with their action on the abnormally reacting skin, especially in hydroa vacciniformis, variola, pellagra, xeroderma pigmentosum, solar eczema and Hutchinson's prurigo. Fønss has encountered one case of hydroa vacciniformis. The patient was a woman of 23 otherwise healthy; her skin affection first developed at the age of 8 and affected the hands, arms and face during the spring and summer, subsiding in the fall. The intensity grew less after the age of 15 but is still quite marked in the spring, the vacciniform aspect still typical. Hematoporphyrin is sometimes found in the urine.

He has also encountered four cases of xeroderma pigmentosum. The patients were a child of 9, a young man and a young woman and a woman of 41. In the latter case the affection is of thirty-five years' standing; no tumors have developed at any point, merely the typical pigmented patches, enlargement of the veins and atrophy of portions of the skin. In the other cases there were ulcerating tumors. The affection began in early childhood in the young man and at 19 there were nine ulcerations on the face and neck. The microscope showed that one was a carcinoma, the others rodent ulcers. In discussing injury from artificial light, Fønss relates the case of a young woman who worked under a mercury vapor light in copying photographs, and developed severe dermatitis on face and hands; there was only slight conjunctivitis although the eyes had not been protected.

146. **Elliot's Operation for Glaucoma.**—Lundsgaard concludes from his experience with this operation on forty eyes that it is a valuable addition to our methods of treating glaucoma, relatively certain in its effect in suitable cases, and easy to do. But there are certain dangers connected with it, which forbid its general application, especially in prophylaxis alone. Of course the earlier the operation is done the better the results, but he has witnessed several cases in which the abnormal tension in the eyeball subsided apparently spontaneously or under application of myotics, and there has been no recurrence of the tendency to glaucoma. The tension in these cases was never very high, never over 30 or 35, so that now, in cases of this type, he waits a while to see if they will not return spontaneously to normal. When the pressure is above 30 mm. and does not subside under myotics, he operates at once in all cases of simple glaucoma, even when the field of vision and visual acuity are not considerably reduced. He has never noted any aggravation afterward in such cases. With secondary glaucoma, he prefers iridectomy. The outcome of Elliot's operation was ideal in thirty-two of the forty eyes, the interval since ranging from six months to two years. In two others, both with cyclitis, there was detachment of the retina with atrophy of the eyeball, and in six the tension in the eyeball persisted unmodified. In all but one of the eight cases there was preceding chronic inflammation.

147. **Injection of Paraffin in Treatment of Ozena.**—Blegvad reports five cured or materially improved over a period of two or three years out of thirty patients whom he has treated by local injections of paraffin. The interval since has been too short in some of the others to estimate the outcome, but the fetor has disappeared in practically all. The benefit is possibly from the narrowing of the lumen, enabling the nose to be blown more effectually and thus preventing accumulation of crusts, but the modification of conditions in the mucosa is probably the main factor. The mucosa is softened and rendered succulent by preliminary injection of water, so it takes up and holds more of the paraffin. The latter is injected beneath the mucosa on the inferior turbinate and septum. It lifts up the mucosa and then the paraffin is injected directly into the mucosa. There was moderate hemorrhage in one case and quite severe in another, coming on in the night afterward, but subsiding spontaneously. In two other cases there was brief suppuration in the septum. The ultimate outcome depends on the regenerating powers of the mucosa. He uses paraffin with a melting point at 51 C.